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The UGC in reflective mood

The University Grants Committee, no doubt with its many fingers firmly crossed, is taking the Government at its word and assuming that the universities can look forward to a period of stable funding after the present cuts have worked their way through the system. So the committee may enjoy a short breathing space this spring. Apart from mopping up the few universities that are still being difficult about targets for student numbers next year and the distribution of the recurrent grant for 1983-84, a fairly straightforward job with no significant deviations from plan in prospect, the UGC in fact has rather little to do. The winnable battles over compensation, superannuation, rates and now overseas students have all been fought and mostly won. The unwinnable war is still in the past.

This breathing space is reinforced by the simultaneous interregnum through which the committee is passing until a successor is found to Sir Edward Parkes as chairman. The Government is clearly finding it difficult to persuade any acceptable vice-chancellor or equivalent candidate to take on the job; an announcement of Sir Edward's successor had been informally promised for before Christmas. Whatever the cause of the delay, its effect is to intensify the feeling of interregnum. However hard he tries, Sir Edward is bound to disengage himself from the committee which can only be replaced by a successor.

The UGC should start by considering the long-term implications of the decisions it has been rushed into taking during the last three difficult years. In particular its selectivity strategy of 1981 which protected some universities and punished others. At the time the committee played pragmatic. It rejected any advice to divide up the universities into first, second and third divisions and any subsequent suggestion that it was precisely this stratification that was the problem.

A constant source of tension has been the policy of the committee to pay the vice-chancellors of the CDP (CDP is actually paid for by the Council of Local Education Authorities (CLEA)). As these two bodies were on opposite sides in the recent war over the future of the polytechnics, it is hardly surprising that the budget of the CDP has become a highly charged political subject.

On one side the CDP feels that its budget is as low as possible and to subject to constant scrutiny, partly to prevent the polytechnic directors developing too elaborate a capacity for independently influencing policy, and partly to punish them for refusing to toe the CLEA line. On the other side the CLEA feels that it has to pay for a pressure group that consistently opposes the views and interests of local authorities; although the council is paying the piper, the tune is nearly always approved. So the CDP believes it is the victim of intimidation and CLEA believes that it is forced to subsidize the wilful and sustained disloyalty of a group of its senior employees.

The trouble is that the charges and

the UGC is at present in an unusually reflective mood.

If this is true, the committee could perhaps take the opportunity to look further ahead to the late 1980s and early 1990s and consider what kind of university system present policy should aim at. After all, the National Advisory Body on the other side of the binary tracks is trying to stimulate this longer-range policy, even if the particular means chosen by the NAB, the proposal for more two-year courses, seems a little clumsy. For after money, the scarcest resource in higher education today is a sense of direction. Lost is not only the planning horizon so much prized by the institution and system builders of the 1960s and 1970s but also the much more important horizon of aspiration.

The UGC should start by considering the long-term implications of the decisions it has been rushed into taking during the last three difficult years. In particular its selectivity strategy of 1981 which protected some universities and punished others. At the time the committee played pragmatic. It rejected any advice to divide up the universities into first, second and third divisions and any subsequent suggestion that it was precisely this stratification that was the problem.

Voice of the polytechnics

It is a little paradoxical that the CDP, the semi-independent status of polytechnic directors. They have never really accepted that the CDP should have its own policy capacity. On the other hand the often abrasive behaviour of the CDP has made it exceptionally difficult for the local authorities to accept any new relationship. The preoccupation of the CDP has been with propaganda as much as with policy.

Yet it is clearly in the interests of non-university higher education that the voice of the CDP should be strengthened rather than weakened. In the universities the Committee of Vice-Chancellors and Principals fulfils a doubly important role, as an independent focus of university opinion and as an equally independent source of information and expertise. To allow a similar development to take place the CLEA will have to show both forbearance and fore-
recognition that in the long run a more expertly-staffed CDP would tend to develop and support more sophisticated policies, which would be likely to be more positive and less abrasive. The standing of the CVC should be some encouragement here: it is probably more respected as a source of expert information and

President Reagan's U-turn

President Reagan's budget for 1984, which he sent to Congress last week, indicates a remarkable mid-term U-turn as far as science and higher education are concerned. The science budget, protected though not increased in recent years, will see some real growth in 1984 as a result of a 17 per cent increase in federal research and development. And the up its vendetta against federal grant 1984 student aid will be level-funded changes in "philosophy".

In the case of the science budget, the administration genuinely believes

that scientific research is a major investment in economic growth. In Reagan speak to Congress, President Reagan spoke lyrically of the "new could transform the nation's economy. There are criticisms to be money: the Pentagon continues to al research spending, and the life sciences will be cut back so more money can flow to maths, physical sciences and engineering.

In the case of student aid, the decision to keep spending near existing levels is a recognition of political realities rather than a decision

based on conviction. The president's attempt to persuade Congress to cut student aid by nearly half last year failed dismally because most Americans send their children to college and expect some help.

Both parts of the budget contain important messages for Britain. Mrs Thatcher should take note of the readiness of an unsentimental administration to support basic scientific research despite huge public spending deficits. Universities should recognize that it is its policy of open higher education a national constituency and protected it from

the UGC is at present in an unusually reflective mood.

For its part the CDP must adopt a less sectarian position. There can be little justification for a national body representing institutional leaders that is confined to the 30 polytechnics (especially when not all directors attend - although who would dare label those who do as irresponsible and unrepresentative). The case for a broader body that includes not only the present CDP, but also the Standing Conference of college principals and perhaps the principals of Scottish central institutions is very strong.

The best possible result would be all non-university institutions with a sufficient and expert secretariat. Such a body could be relied on to establish a more sophisticated relationship with local authorities and so generate more respect within Science, but also to act as an effective check on the work of the NAB. The best thing that the CLEA could do immediately is to offer much more generous funding to the CDP and the Standing Conference provided that they agree to merge.

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Laurie Taylor



Ah Lytham. There you are. Don't stand on ceremony, lad. Fleetwood, sir.

What's that?
Fleetwood, sir. Not Lytham. Really. Oh well, never mind. Come on in. Grab a chair. That's the way. Thank you, sir.

Now, what seems to be the trouble. A nasty touch of mid-winter blues - personal problems - a backing a essays? Out with it.

Well, it's a little difficult to put in words, sir.

Come along. Spit it out. And do wipe your eyes. No blubbering here. Eh? Should be ashamed of yourself. Big boy like you. Nice and grown up. Right?

Yes, that you sir. I'm... I'm sure. That's better. Now pull yourself together and tell me what's the matter.

It's just that I seem to be... sort of... overcome by a terrible feeling of... I don't know how to put it, sir.

You're putting it splendidly. Fleetwood, sir. Splendidly. Just tell me what's the matter. You'll find me got pretty broad shoulders. Now what sort of "feeling" exactly?

It's a sort of feeling, sir, that the university isn't any longer what it used to be.

Good heavens. What on earth do you mean, young man? Milk and honey? ...

No sir... but I thought... well, I thought that being in a university would put me in touch with the world. You know, sir, thoughts.

So it can. But a lot of it's up to you, you know. Oh yes. There's a spoon-feeding here. You're not a school now.

I imagined that I'd somehow got mixed up with teachers who would mould me but to find things out on my own.

Pure idealism, Heysham. No wonder you're in the state you are. You must take a more practical perspective.

I wanted a bit of enthusiasm and adventure. I know I may be speaking out of turn, but I wanted something more than a place where the teachers all seem so old and tired.

Yes. Go on. And where they... well... where they seem to spend most of their lives trying to attract second-rate foreign students.

And counting up A level scores and calculating the relative employability of their undergraduates.

The Times Higher Education Supplement

February 18, 1983 No 537 Price 45p



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Maurice Godelier on French social science, 9

Quantity before quality plan for polys, colleges

by John O'Leary

The Department of Education and Science this week put forward plans to allow a substantial increase in student numbers in colleges and polytechnics, forcing up staff/student ratios and cutting unit costs. The policy is in sharp contrast to plans for the universities to be announced today by Sir Keith Joseph, Secretary of State for Education and Science.

At separate meetings with the local authorities and the board of the National Advisory Board DES officials presented a paper which conceded that overall cuts in public sector higher education "should be much less" than the 10 per cent target set by the Government, if costs are contained.

However, there was considerable unease in the NAB board at the DES proposals, which would involve continuing high recruitment without a corresponding boost to resources while universities were being told to reduce their numbers. The board is to make its decision on future numbers before Easter.

The paper offers the view that an overall staff/student ratio of 12:1 "ought to be feasible" by a selective increase in non-science subjects. In the sciences, the increase would be 20 per cent, to 10.6:1, while others (apart from art and design) would rise by 39 per cent, to 14.5:1.

"These changes would primarily have to be achieved through an increase in class size; with the clear implication that if student numbers are broadly maintained at their current level the increase in class sizes would have to be achieved largely through a rationalization of course," the DES paper says.

They argued that polytechnics and colleges should

respond to continuing high demand for places by accepting staff/student ratios at least 25 to 30 per cent worse than last year's average of 8:1. And their paper put the case for moving to an average of 12:1 by increasing class sizes still further in the arts, social sciences and humanities.

Although neither meeting reached a positive conclusion, the local authorities, at a meeting of the Expenditure Steering Group: Education, were anxious not to narrow access to higher education. The NAB board, which referred the paper to a working group, agreed not to attempt to protect the existing level of finance per student during its 1984/5 planning exercise to set student and financial targets in the public sector.

A separate paper from the NAB secretariat estimated that to protect the existing unit of resource when Government and local authority cuts might result in overall budget reductions of about 15 per cent would mean halving the number of students admitted/or spending 20 per cent less per student.

In Her Majesty's Inspectorate's view, within a fairly wide range of SSRs, performance and class size are not related. This view is reinforced by the fact that there are already institutions with good academic reputation operating within the SSR/class size ranges implied by an overall SSR of 12:1.

Sheffield, Hatfield, Newcastle and North Staffordshire polytechnics are named as examples of those with high staff/student ratios in science subjects; Coventry, City of London and Sheffield are listed for the remaining subjects. The paper calls for an average of 15 students per class as a reasonable target for all institutions "even at the lower level projected if student numbers remain constant or return to 1981 levels."

Humanities PhDs: universities must do better, says DES

by Sandra Hempel

Universities have been told to improve the poor performance record of postgraduate humanities students which is now to be kept under constant review by the Department of Education and Science. The situation will be reassessed next year.

A survey of graduates taking up major state studentships from 1972-74 carried out by the department last summer has shown that, eight years later, only half had obtained their qualifications. Of those given awards in 1972, 42 per cent had failed to gain PhD by 1982 while 47 per cent had not received their masters degree. In 1973 and 1974 the failure rate was 40 per cent and 51 per cent and 49 per cent respectively.

The department has now written to all vice-chancellors and principals describing the results as "a source of considerable disappointment and concern". It would be reasonable to expect that, with very few exceptions, all students would have presented a thesis for a higher degree within five years of starting their course of study, the DES says.

The DES stresses the role of individual university departments in providing guidance and supervision to postgraduate students and asks that the contents of its letter be brought to the attention of all heads of departments.

While the DES has published only the national results of its survey, it also has the information broken down by institution. There is said to be a wide difference between the best and the worst which bears little relationship to the reputation of the universities involved.

Officials hope that universities will compare their performance with the national average. While they accept that improving the performance rate is a long-term task, there is hope that some progress might be shown when the survey is repeated in about a year.

The decision to carry out the survey was taken following the conclusions of the working party on postgraduate education - the Swinerton-Dyer report - a year ago. This looked at natural and social sciences and blamed the universities for the "wholly unsatisfactory" completion rates.

The DES believes that the laboratory-based work involved in natural science research and the comparatively small amount of writing needed for submission for a higher degree means that these students will necessarily tend to complete their work in a shorter time than humanities postgraduates. Even allowing for this, however, officials think the figures are capable of considerable improvement.

Trinity and All Saints College, Leeds was named this week as one of the institutions which attempted to beat Treasury cash deadlines by putting excess funds it held at the end of the financial year in the hands of a solicitor.

Sir James Hamilton, permanent secretary at the Department of Education and Science named the Roman Catholic college at the House of Commons Committee of Public Accounts which was taking evidence

on the control of grants to voluntary colleges.

Sir James was explaining why some 14 colleges held cash balances in excess of between four and 11 per cent of their net expenditure. According to the Comptroller and Auditor General's report cash balance had been revised from an original £2.6m to £4.6m.

Trinity had claimed an increase in funding. It revised its claim from nil to £800,000 against an estimated annual expenditure of £300,000. But



Richard Green of Coventry received one of 39 special medallions from the Prime Minister, Mrs Thatcher, this week, marking the completion of his Engineering Industry Training Board fellowship in manufacturing management.

Mr Green was well pleased with his award, but less happy about the fact that he has been unemployed since he left Alvis in Coventry at the end of his fellowship. He took a first class degree in Production Engineering from Coventry Polytechnic before selection for the scheme, which is intended to encourage young engineers to enter management rather than design or research. He now says he will look for work abroad.

It was also revealed that another unnamed college was found after an internal DES audit to have held a cash balance of £1.43m compared with the £325,636 it had originally reported.

College accused of trying to beat Treasury

by Patricia Santinelli

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Buckingham wins Royal Charter

The University College at Buckingham this week announced that its application for a Royal Charter had been granted, allowing it to become the only independent institution to award degrees.

The college, which was founded 10 years ago, will change its name to the University of Buckingham when the charter is received in about two months' time. Students graduating tomorrow will receive licences, as before, but degrees will be awarded in future.

Stirling's body blow for tenure

by Olga Wojtas

Scottish Correspondent

Stirling may be the first British university to withdraw completely tenure for all new academic posts. The university court has proposed that all new appointments should be made through fixed-term contracts of no more than seven years.

The court sees this as an interim policy until decisions on contracts and tenure are made nationally. However, there have been no formal negotiations over these issues following the publication last year of a document from the Committee of Vice-Chancellors and Principals proposing an eight year probation for academic staff.

Stirling suffered one of the severest University Grants Committee cuts, but has been unable to make substantial savings through early retirement since less than a dozen staff qualify. The university charter gives tenure to all academics on permanent contracts.

Dr Henry Saffron, president of the Association of University Teachers, said: "We realize the court is doing this in a sense from the best possible motives, not wanting to affect present staff, but we are very anxious and unhappy about the principle involved."

"Such a move would be a great deterrent to recruitment. Our chances of getting the best people for the jobs which are available would be very slender."

Mr Michael Jackson, president of Stirling's Association of University Teachers, said: "The court has decided this is the policy they want to adopt, but we are negotiating at the moment. The AUT takes the view that the use of short-term contracts is unacceptable."

Stirling has advertised a chair of information technology, but this is being funded by Central Region for an initial period of ten years. It is not yet clear whether the University Grants Committee will allow funding for further information technology posts, but Mr Jackson said it was vital that the matter should be resolved if any new posts were likely to be created.

The joint negotiating committee will meet again after the court's next meeting in March.

NUS refuses to host conference

from Donald Fields

HELSINKI
The National Union of Students this week withdrew its offer to host the twentieth east-west meeting of student unions. Instead the communist-dominated UNEF, claiming the allegiance of 30 per cent French students, will stage the conference next September.

British interest in the project waned during a preparatory meeting in Helsinki when representatives of the International Union of Students (IUS) insisted that the deliberations be crowned with a final document, an idea that breeds disenchantment among western followers.

NUS's international officer Julian Eccles said: "The East Europeans were unprepared to offer remedies to the problem. It seems that a proper dialogue cannot be achieved."

When it meets at Warwick University at the end of March, the NUS executive will have to decide between a complete British boycott of the conference or minimal participation.

Hull and Salford proposals rejected

by Sandra Hempel

As universities wait to hear the results of the University Grants Committee's decision this week on the distribution of the 1983/84 grant, two institutions facing financial penalties for admitting too many students have had their restructuring proposals turned down by the UGC.

Salford and Hull, both among a small group of institutions accused of over-admitting, have been told that no money is available for extra places. Salford, which is working towards a target of 3,000 students by 1984/85, 250 more than the UGC's figure, presented a package of proposals in September which would have given it another 200 students. But most of its initiatives have been rejected.

Salford asked for a recurrent grant of £108,000, prime pumping of £150,000 and capital funding of

£150,000 for its thin film and surface research centre which would have meant another 60 students; a recurrent grant of £47,250 for a special stream in languages for engineers (80 extra students); and a recurrent grant of £47,250 for a new BSc in modern languages and marketing (60 extra students). Of these only the new BSc will definitely go ahead.

Other Salford proposals to be rejected include financial support for a centre for computer-aided engineering, a centre for instrumentation and automation, a vector studies unit and for the campus venture and enterprise fund, designed to forge greater links with industry.

The university has been told to rethink its bid for £83,270 over four years for its economic intelligence service because the committee says it could attract "a higher level of pump priming support from private

sources", while the UGC is sending one of its members, Professor Peter Moore from the London Graduate Business School, to discuss a request for £53,850 for collaborative studies. A spokesman said the university was extremely disappointed, but added that Salford would put in a "strong batch" of cases for consideration under the new blood and information technology headings.

Hull was also very disappointed that its request submitted in November for support for 80 extra students had been turned down. The university claimed that the UGC had failed to take account of the fact that some of its new science courses were not fully on-stream when it calculated the university's student targets and that the extra places would merely correct this oversight.

In their replies to the UGC's accusation about over-admitting,

both universities criticized the time the committee took to make its decisions on restructuring and claimed that this made their task of planning student admissions more difficult.

Professor John Ashworth, Salford's vice-chancellor, last week criticized the tendency to steer young people "towards Nobel prizes" rather than industrial innovation. Britain needed the parity of esteem between technically competent people and prestigious academics which existed in France and Germany.

In a lecture at the Highgate Library and Scientific Institution, in London, Professor Ashworth said that the United Kingdom was responsible for a third of the world's scientific research but only 8 per cent of its firms were applying the results commercially. This was a source of irritation for governments but there was very little they could do about it.

SSRC shuns survey of election

by Jon Turney

The Social Science Research Council has decided not to fund a survey of the next general election, breaking a sequence begun in 1964.

Three teams at Nuffield College, Oxford, Strathclyde University and the London School of Economics applied to the SSRC's government and law committee for funds to carry out the election. All three teams were rejected.

Dr John Smith, the secretary of the committee, wrote to each group of researchers saying: "The case is regularly linking the analysis of various aspects of political behaviour and political change to general elections is in need of re-examination. The letter says the committee is not opposed to survey-based research as a matter of policy, but believes the academic community should reappraise the methods used and the issues the surveys are designed to clarify."

Researchers in the field have criticized the committee for stopping the election study while the position of such work is under review. They are also unhappy that none of the three groups was asked to refine their proposals or submit cheaper plans, estimated at around £200,000 for the initial outlines submitted.

Dr William Miller, of Strathclyde University, said the decision was "disaster" for the profession. "I think the SSRC committee has essentially self a footnote in the political books of the 1990s - explaining why there is a gap in the tables of social data."

It was impossible to go back to fill in the gaps afterwards, said Miller. Many questions only found answers when results were analysed.

Nearly 50 out of 193 requests for information from the SSRC's archive at Essex last year were material from one or more of its previous election studies.

The SSRC official said the committee would not comment on individual grant applications. The committee would have been aware of the importance of continuity, just as would consider other criteria.

The SSRC is making a grant of £20,000 towards a smaller study of the next election by David Butler at Nuffield College.

Library cuts irreparable, says Larkin

Professor Philip Larkin has condemned as "irreparable damage" proposals to cut between 15 and 20 per cent from Hull University's library budget.

The economics, which have been suggested by the university's development committee, would follow a recent cut of 17 library posts, in a report to the university senate on the implications of the proposals. Professor Larkin, university librarian, said that even a 12 per cent reduction would have a detrimental effect on the library's character for the rest of the decade.

The immediate results would probably include a 50 per cent reduction of services in the social sciences library, a suspension of all services for one hour at lunchtime and from 2.30 pm and the closure of the record lending library.

"We have reached the stage where we cannot absorb any more cuts without serious damage," Professor Larkin said.

"Whether the plan goes ahead will depend to a large extent on the support of the university's grant for new books and how soon we can abandon rigid policy of never replacing old books who leaves regardless of their function. We need clerical workers to be unfrozen immediately. We have lost some valuable academic library posts."

Labour plan for unified training

by Felicity Jones

A new Labour Government would reappraise the Manpower Services Commission as pressure built up within the party to take more drastic measures and even to abolish it.

The party suspects that the Youth Training Scheme, due to start in April, would be used to break up comprehensive education, provide cheap labour for some employers and therefore training and education more divisive.

At a fringe meeting at the Labour local government conference in Portsmouth last weekend, Mr Philip Whitehead, Opposition spokesman on higher education said that any system that reinforced the distinction between the "sleep and goats in education", between those who left school at 16 and those who stayed on in grammar schools, had failed.

The money which was "washing about in the system" for MSC schemes should be being used to coordinate the worlds of education and training, he said. He thought that a strain would be put on colleges over the next two years by the expected flood of applicants and it would fall if teachers were not specially trained to deal with "deeply alienated" children.

"The MSC is here to stay until the election," said Mr Whitehead. "I think that we have to work with the new training initiative in the first year with the proviso that an incoming Labour Government will see it as a preparatory stage to unified student traineeship."

The Socialist Educational Association, one of the fastest-growing Lab-

our-affiliated groups, has called on local authorities to oppose all schemes which have not been specifically approved by the relevant trade union in the latest edition of its journal *Socialism and Education*.

The educational component of training schemes should be supervised by the local authority, says the SEA. Immediate steps should be taken to devise a national strategy for a scheme fully integrated with full-time education.

Out of a small survey of eight Labour-controlled councils carried out by the journal, six said they would be participating in the YTS 'mainly to attract funds and to counteract high youth unemployment. Sheffield had definitely decided against it and another was still undecided.

Birmingham, then Labour, doubted whether the scheme was financed sufficiently and was concerned about the vacuum left for young people who left the scheme after one year. Leeds thought the success of the scheme depended on the status of qualifications gained on YTS and that the "aggressive stance of the new chairman of the MSC towards compulsory schooling and his narrow vision of human beings as nothing more than units of labour" was unfortunate.

The dependence of many further education colleges on MSC courses was seen as making them vulnerable to complete closure if the Government suddenly withdrew its support. Mr John Hamilton, Liverpool Labour group leader said that half the student hours at Childwall College were now spent on MSC courses.

'Government and Opposition'

The editorial board of the journal of comparative politics, *Government and Opposition*, has asked us to publish the following statement to clear up any misunderstanding which may have arisen from the new item "A series to put the world to rights" which appeared in *The Times* on February 4, 1983.

"In the first place, the series of articles entitled 'The Neglected' which is being published in *Government and Opposition* has no connection whatsoever with the 50th anniversary of Hitler's rise to the German Chancellorship.

"Secondly, the series is not concerned with right-wing thinkers as such, but with 'neglected' political thinkers of all complexions.

"The complete list of thinkers and corresponding authors is as follows: T. Carlyle (J. Mendilow), P. Kropotkin (D. Miller), J. Burckhardt (W. Mommsen), B. Halley (Raymond Aron), C. Peguy (P. Manent), K. Kautsky (S. L. Anderson), M. Ostrogorski (G. Jones), J. A. Ferrero (S. E. Finer), G. G. Gobleau (M. Biddis), O. Hintze (J. Hall).

"Of these thinkers only Gobineau may be said to have had any influence on the formation of Nazi ideology. Otto Hintze was a constitutional historian and an opponent of Nazism. Of the remaining thinkers, none had leanings towards or influences on Nazism or Fascism.

"Thirdly, the series was not intended to introduce right-wing thinkers into the main stream of university course syllabuses. The purpose of the series was to revive public interest in these thinkers."

The charge came from the 34,000-member Association of University Teachers in a critique of Government and University Grants Committee policies during the period of consultation.

The union says that it will never be known publicly why the Cabinet imposed a double cut on the univer-

Huddersfield fate delayed

A firm decision about the future relationship between Huddersfield Polytechnic, its governing body and Kirklees Council has been postponed until after the Layfield report has been received.

A meeting last week between Mr William Waldegrave, under-secretary of state for higher education, and Kirklees representatives to discuss the polytechnic's difficulties led to a joint statement in which both agreed that the level of public concern did warrant serious consideration.

The minister said the genuine concern required positive steps. But since Sir Frank Layfield's report on the polytechnic's financial affairs ought to be available by the end of the month, a decision should be delayed.

The two parties agreed to meet again before the end of March to continue their discussion.

Mr Waldegrave has left it up to his own discretion, as he is entitled under section 68 of the 1944 Education Act, whether to take any action over complaints against the governing body and a request for a public enquiry. This came from the former chairman of the polytechnic's governing body, Conservative Councillor Jane Carter over the decision not to reinstate Mr Peter Fielden, the former head of academic support services.

He said in the joint statement that he had yet to decide if there were grounds and whether such intervention was in the best interest of the institution.

Joseph stays firm on grants rise

by David Jobbins

Vice chancellors have failed to sway Sir Keith Joseph, the Secretary of State for Education and Science, over the widening gap between student grants and living costs despite their most strident warning yet.

Sir Keith told the Committee of Vice Chancellors and Principals that he appreciated their concerns but that given the need to restrain public spending and the Government's success in bringing down inflation, the 4 per cent increase for 1983/84 was a "reasonable outcome".

The vice chancellors are angry that for the second year running the timing of the announcement has pre-empted their own detailed survey of board and lodging costs at universities. They had sought assurances that last year's divergence from past practices would not set a precedent and Dr Albert Sloman, the committee's chairman, wrote to Sir Keith that they were disturbed that the Government had again made its decision before the survey was completed.

But Sir Keith says that as there was no room for manoeuvre, the only honourable course was to announce the size of the increase as early as possible.

Dr Sloman told Sir Keith: "Our survey clearly shows that students are having to spend more and more of their grant on accommodation charges and less on the purchase of essential books and equipment, giving rise to academic problems for example in university libraries."

The gap between the actual grant and students' maintenance needs is steadily widening, from 18 per cent in December 1981 to 21 per cent at the end of last year.

A key factor has been the rising cost of student accommodation - a 9 per cent increase in the average cost for all types of accommodation over the past year despite efforts by the universities to keep prices down at the expense of basic standards. Private-sector accommodation rose by about 12 per cent over the same period.

Dr Sloman said: "We are deeply concerned that no account appears to have been taken of the detailed evidence which the committee has, with considerable care, compiled from the evidence supplied by the universities themselves, and which has made clear the continuing fall in the real value of the grant and the increasing financial difficulties experienced by students."

Student leaders are apprehensive about the announcement in the public expenditure White Paper last month that the cost of the "new blood" scheme to recruit young academics into the university system is to be "partly offset by a reduction in the previously planned value of the student grant".

Mr Neil Stewart, president of the National Union of Students, has called for an assurance from ministers that this does not mean a retreat from the 4 per cent increase or from the 8 per cent increase in the threshold for parental contributions.

This and continued speculation on the introduction of a mixed loans and grants system of student support are said by student leaders to be fuelling support for next week's planned 24-hour occupations of universities and colleges.

Support is considered most solid among the polytechnics where students feel threatened by the National Advisory Body's prioritization exercise, and surprisingly strong in the further education sector.

Mr Stewart said: "We expect over 100 institutions will be taking direct action of one sort or another on February 23."

Education first for Arts Council

by Karen Gold

The Arts Council announced this week that all artistic ventures it subsidises in future, including annual renewal grants, will have to include education in their plans.

The council's first educational policy statement contains a 10-point scheme which represents a broad commitment to education as primary way of increasing audiences and interest in the arts.

One of the main criteria for assessing the worth of grant-receivers will be "the extent and quality of effort made to broaden the social composition of audiences, to develop response and to increase involvement in the arts", the statement says.

For the first time there will be a separate education budget of £85,000, rising in principle between 10 and 20 per cent each year. It will support a five-year development period when each department - music, drama, dance, arts, literature and the regions - will receive funds and special attention from the existing education unit for three years.

Every department panel will now be obliged to have one education expert, and all six panels will have to produce papers on the implications of the new policy on their area and meet twice a year to discuss developments.

A formal link with the Department of Education and Science will be established, and regional arts associations will be encouraged to develop their educational role.

The policy results from a discussion paper issued by the council in 1981, followed by a national conference and wide consultation.

The new commitment acknowledges that the arts are an elite interest and says it is a need to change that. "For many people, the arts are a closed book because they have been influenced (by their social class, education or culture) to believe the arts are 'not for them'." It says, "These less tangible barriers to success can arguably only be tackled by education in its broadest sense."

Policy for the UK Information Technology Industry, NEDO books, £3.

Directorate takes shape

Plans for a unified administration of projects to develop computer applications in manufacturing are taking shape within the Science and Engineering Research Council.

The council has approved proposals for a new directorate to oversee Applications of Computers to Manufacturing Engineering (ACME).

The new directorate would bring together existing programmes in industrial robots, production systems and automated machines.

News in brief

Rickett asks for fairer share

Dr Ray Rickett, director of Mid-dlesex Polytechnic, has written to the Council of Local Education Authorities to press for a more equitable distribution of the £2,850m allocated for higher education in 1984-5.

He calculates that universities spent £4,000 on each full-time equivalent student this year compared to £2,500 in the public sector. Universities increased their current grant by 5 per cent in the coming year whereas the maintained sector increased its award by only 2.5 per cent, according to the recent Public Expenditure White Paper, 1982/83 to 1983/84.

Socialists 'wrong'

The Labour Party national executive is next week expected to endorse the finding of an internal inquiry that the Labour Party Youth Socialists should not have put up candidates against the National Organisation of Labour Students for internal National Union of Students elections last month.

The inquiry was set up by the party's youth committee after complaints that LPYS had run candidates for election to the NUS further education national committee. The Militant Tendency-dominated LPYS and NOLS have been in bitter competition for a share of the party's youth budget.

Criminal advice

Sheffield University's Centre for Criminological and Sociological Studies had set up a local advisory committee to advise on the centre's work. Members include Roy Hattersley, MP, Patricia Hewitt, general secretary of the National Council for Civil Liberties, David Blunkett, leader of Sheffield City Council, and Peter Wright, chief constable of South Yorkshire.

Rule of Law

Dr Harry Law, president of Portsmouth Polytechnic, has been elected vice-chairman of the Committee of the Directors of Polytechnics. He will take up the position in April for a year followed by two years as chairman.

Correction

The total number of applicants to find a university place, through the Universities Central Council, on Admissions, published in *The Times* last week, should have read 25,945 while 11,607 were not referred and 8,147 were referred but not accepted.

Social conference

A Scottish conference is to study the implications of the Barclay report on social work published last autumn. One of the principal speakers at the conference in Paisley on March 1 will be Professor Robert Pinker, of the Department of Social Work and Social Administration at the London School of Economics, who was author of a minority report.



Lord Home, the former prime minister, and Helen John, of the Greenham Common women's peace camp, are seen at a press conference last week. A re-run of the debate on the proposition "The House would not fight for Queen and country". A corresponding motion, carried 50 years ago, caused a Lord Balfour, who voted for the proposition in 1933 but spoke against it last week.

Complexity puts jobless off 21-hour study

by Patricia Santinelli

Only a minority of young unemployed people have been able to study at colleges for 21 hours a week while still drawing benefits, according to an interim report from Youthaid.

The report says that the Department of Health and Social Security concession which allows 16 to 19-year-olds to study for 21 hours without losing benefits was used by only an estimated 16,000 young people in England in 1981/82.

The Youthaid study was based on 260 further education colleges, of which 117 said they had such provision, and 130 schools and sixth-form colleges, of which 34 had students under the 21-hour rule.

The as yet unpublished report, which is in final draft is likely to be approved by the Department of Education and Science, which funded it, in the next few weeks. The study

will continue until October with further funds from the DHSS which wants Youthaid to investigate the reasons for the complexity of the 21-hour rule.

Youthaid says its findings show that the number of opportunities for such study in the further education sector were limited both by the DHSS regulations and also by the variable way the DHSS interpreted these. This was partly caused by changes of guidance to offices.

Regulations were altered in August when the DHSS decided to exclude private study and lunch breaks from the 21-hour rule. But it also introduced a new regulation which meant that recent school-leavers would not be eligible for such a benefit of study until they had been unemployed for three months.

This meant that most young people who left school in the summer and registered in September would be unable to start a 21-hour study

period until December. But they can study for 15 hours during the interim without losing benefits, as long as they do not remain on the same course if they wish to benefit from the 21-hour rule.

Youthaid says that the lack of enthusiasm for students studying under such regulations is partly due to their complexity.

Many staff and administrators had complained that they had to spend far too much time dealing with the DHSS rather than concentrating on their normal activities and many felt it would be better if the concession did not exist.

The report says this has highlighted the need for a revision of the financial provision for all 16 to 19-year-old students because of the enormous anomalies between those who get nothing and others such as those on Youth Opportunities Programme who receive £25.

'Ignore job-splitting' plea

The college lecturers' union is advising members to shun the Government's controversial job-splitting scheme.

The women's TUC next month is expected to back a call from the National Association of Teachers in Further and Higher Education to condemn the scheme for discriminating against women and "as a crude attempt to camouflage unemployment" and remove employment rights.

Under the scheme, which was launched experimentally in January, employees stand to lose their protection under employment law unless they have been previously employed for 16 hours or more. College lecturers would be particularly at risk because their basic week is just 15 hours.

Natthe's national women's committee has been discussing the advantages of a job sharing scheme particularly for female lecturers.

But the union is anxious to prevent confusion between individually-negotiated sharing schemes which maintain employment rights and the Government's own proposals.

A number of individual job sharing arrangements already exist following discussions with sympathetic local authorities. The union feels that teaching is one of the areas in which job sharing could work well but is afraid that lecturers may be tempted into schemes which reduce their employment protection.

The women's TUC, meeting in Scarborough, will also discuss a demand from the Association of University Teachers for a reversal of the decision not to finance conversion courses at university level. These would enable women students to overcome the bias against science and technology in school curricula.

UGC rejects teacher training quotas

by Patricia Santinelli

Further attempts by the Department of Education and Science to impose individual subject quotas for university postgraduate teacher training courses were rejected by the education subcommittee of the University Grants Committee last week.

DES representatives told the committee that there should be no less than 20 in each PGCE group. This would have the effect of wiping out subjects such as classics and physics

which usually have small numbers. The department has been keen since the last rationalization exercise began in 1982 to force on universities the same pattern of subject quotas as it imposed on the public sector colleges, which has basically resulted in the concentration of subjects in fewer centres.

But the UGC education committee, which also withstood DES attempts last year to impose quotas on 1982 courses and close down departments, has decided once more

that universities should be allowed to decide their own quotas for 1983. The committee's confidence in universities was vindicated last year when departments of education managed the exercise within 60 places of the 4,000 places they had been allocated.

The education committee plans, if the UGC main committee agrees, to write to all university education departments to ask them how they will allocate their numbers within individual subjects and what changes are

planned because of early retirement. By the summer the committee should know the exact position and will have time to ask for changes if these prove necessary, in time for courses starting the following year.

According to figures released by the DES this week total intakes to public sector and university departments of education in 1981 amounted to 18,476 or 53 per cent of the total number of students on initial teacher training courses in England and Wales.

Monitor staff, says professor

by Olga Wojtas
Scottish Correspondent

Academics' work should be monitored and they should be dismissed if they are not pulling their weight, according to a Dundee University professor.

Dundee's court says the proposals from Professor A. P. Cracknell of the physics department merit careful study, and has circulated them to members of the senate. Once the senate's comments have been received, it intends "to consider further to what extent Professor Cracknell's ideas might be put into effect."

The document proposes that a new academic planning and development committee should be formed to consider a number of issues including student numbers, research activities, discontinuing certain subjects, and introducing new ones.

It would also monitor and assess staff performance which Professor Cracknell admits is "potentially a minefield." But, he says, it cannot be ignored. "There are some people who hold the view that there is a considerable level of sloth and incompetence among university staff."

Most of Dundee's cuts have been achieved through early retirement, so the remaining staff will have to work more efficiently to maintain the teaching programme, Professor Cracknell says.

"In times of affluence and expansion it is relatively painless to be carrying passengers among the staff. When times get hard, passengers should be forced to pull their weight or in extreme cases, after due warning - they should be dismissed."

Professor Cracknell suggests that academics should update their curriculum vitae every five or ten years covering teaching, the number of hours worked during term time and vacation, the number of weeks holiday taken, contributions to administration and general university life, publications, grants, and "outside activities likely to bring credit to the university."

"We all know that folk will argue that quantity is not synonymous with quality. But if the quantity is zero it is difficult to see how the quality can be there," Professor Cracknell writes.

The committee should assign extra tasks to lecturers found not pulling their weight, or the matter might be referred to court, which could issue a warning or "proceed to dismissal" after a succession of warnings.

"There must be very few other organizations in which no periodic checks are made on the work being done by staff," Professor Cracknell says.

"It is frequently argued that academic staff have tenure and cannot be dismissed or that any attempt to dismiss staff would be an attack on academic freedom."

"But the university, as an employer, has the right to expect from its employees an honest day's work in return for a fair day's pay."

Students line Westminster Bridge, forming part of a human chain between the Ministry of Defence and the Department of Education and Science to protest at the imbalance of Government spending. A cheque for £756m, representing the amount allegedly "owed" to education by defence, was passed between the two departments.

serious difficulties for conference. Mr Peter Dawson, Nuffield's general secretary, has advised branches that their returns should include the voting figures.

West Midlands was one of the regions supporting the executive compromise that successfully staved off the postal ballot campaign. One of its more prominent members, Mr Bill Hoar, helped lead the opposition to CND and the moves for a special conference to call a referendum.

Although he is running for union vice president on a platform which opposes CND he said this week he had "done nothing to excite" the motion.

Both left and right feel that even if the motion - from the West Midlands region - is reached, it will be unlikely to be widely supported because its effect will be to abort the consultation exercise which was agreed at a special conference just before Christmas to head off a demand to ballot the entire membership.

But the consultation process could produce ambiguities which will pose

objectives legitimate.

There is evidence of rising concern that the affair has been a diversion from key trade union issues in general and from Nuffield's established peace education programme in particular.

Tomorrow's council meeting is expected to hear a summary of the available reports of branch decisions on CND and on the rule change which made pursuit of political

Move to speed up CND disaffiliation decision

Fresh moves to speed up a decision on disaffiliation from the Campaign for Nuclear Disarmament could be made by leaders of the college lecturers' union tomorrow.

A motion to the national council of the National Association of Teachers in Further and Higher Education calls for steps towards reversing last year's decision on CND without waiting for this year's conference to reconsider the issue.

Natfhe became the first teacher union to vote to affiliate to CND last May and its 800 branches are now reaching the end of an exhaustive consultation process which is intended to provide the data with which the May conference in Black-

pool will decide whether the decision should stand.

There is evidence of rising concern that the affair has been a diversion from key trade union issues in general and from Nuffield's established peace education programme in particular.

Tomorrow's council meeting is expected to hear a summary of the available reports of branch decisions on CND and on the rule change which made pursuit of political

Labour boosts council democracy

by Felicity Jones

An impressive inventory of measures intended to bolster democracy in local government as it affects polytechnics and colleges, was catalogued by Mr Gerald Kaufman, Labour's spokesman on the environment at the Labour Party local government conference in Portsmouth.

These measures include the right of college staff to stand for council elections; the return to single tier district authorities; universal application of minimum education standards.

Mr Kaufman spelled out ways in which local authority powers could be reformed with an end to the dis-

qualification of local government employees, including polytechnic and college staff from standing for election to their employing authority.

The only exceptions from proposed Labour legislation would be chief education officers and their deputies. Mr Kaufman promised that if Labour won the next general election not only would every "damaging" piece of Tory legislation be repealed but a structure to give local democracy another chance would be fashioned.

Labour plans to return to a single tier district authority and abolish the shires, though it is not clear how colleges with a large catchment area

could be governed by a district authority.

Mr Kaufman promised that money would be freely available and the Rate Support Grant increased with particular help for the inner cities. "A favourable eye would be cast on some form of local income tax."

The election promises of improved national standards proved a source of heated debate in the conference's education working group.

Dr Alan Crispin, senior lecturer in educational administration at the University of London Institute of Education, argued in a prepared paper that in order to overcome the widening disparities in provision at local level where it affects adult education and the award of discretionary grants, some form of central imposed standard was necessary.

He agreed that national standards were anathema to local authorities but said that the degree of centralization and the extent of local influence, both central and local government, had to move from their positions to provide, in the spirit of the 1944 Education Act, for "a varied and comprehensive education service for every area."

National minimum standards would be more equitable, he thought, than restoring local government finance since money was no guarantee that relocalist authorities would step up their education provision.

Councillor Jodie Farrington, chairman of Lancashire education committee, opposed a masterplan imposed from above. The alternative was the restoration of funds with reduced, or no, conditions imposed on councils who would spend the money where, and how, they saw fit. Farrington said that the government policy of "education for all" and "mandatory education" for all as well as higher education students.

Race testing scrutinized

The controversial field of race testing comes under scrutiny in the first of a series of training courses starting next week from the new inter-cultural study centre based at Bradford University.

A three-day course for teachers on testing, assessment, and pupil profiles in a multi-cultural society will be followed by courses on the inter-cultural school, and on language and literacy in primary schools.

Dr Gajendra Verma, reader in inter-cultural education at Bradford, said the first course would involve investigating ethnic bias in testing, and help teachers to avoid obvious pitfalls.

The courses fit the general approach of the International Centre for Inter-Cultural Studies, launched last July by Sir George Young, minister with special responsibility for race relations. The centre aims to promote "active" inter-cultural, and intra-cultural exchanges in appropriate topics.

SDP condemns Scots 'elitism'

Almost all Scottish colleges should come under local authority control, according to the Social Democratic Party's draft policy document on Scottish education.

The document, which will be discussed at a conference in St. Andrews next weekend, condemns the "elitist division" proposed by the Tertiary Education Council, with advanced FE by local authority colleges.

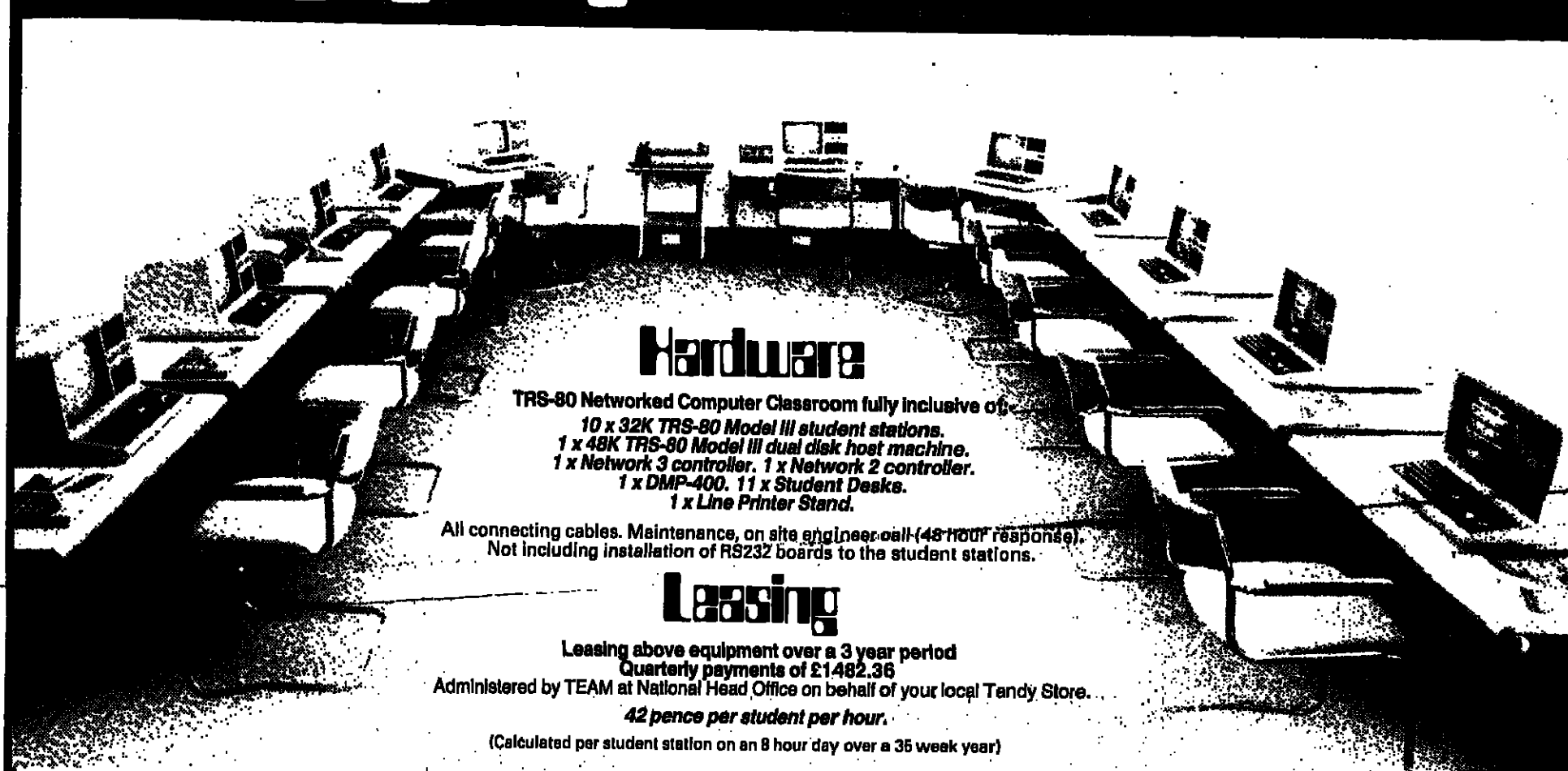
Which combined with the present salaries structure for further education lecturers, this division would create undesirable pressures upon colleges to attract advanced work and concentrate too few resources upon the essential and demanding task of providing for young school leavers and adults returning to basic education," it says.

"At this stage, the SDP tentatively favours a structure where only those colleges serving a limited but specialized need for the whole of the country, such as the Royal Scottish Academy of Music and Drama, would be directly funded while all others, regardless of level of work, would form part of the local authority structure."

The party also advocates an Open College for Scotland, under the direct control of a Scottish Assembly, which would offer a range of opportunities similar to those provided by local authorities and centrally funded colleges.

There should be no further cuts among the education colleges, with empty places being filled through in-service courses," it adds.

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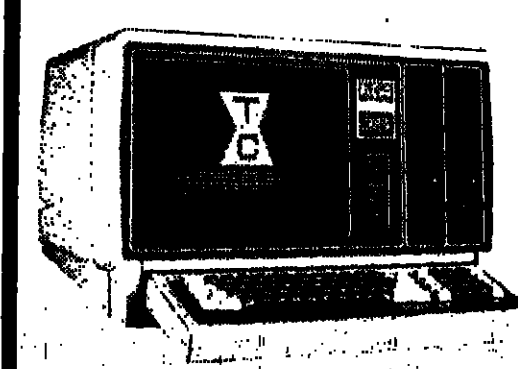
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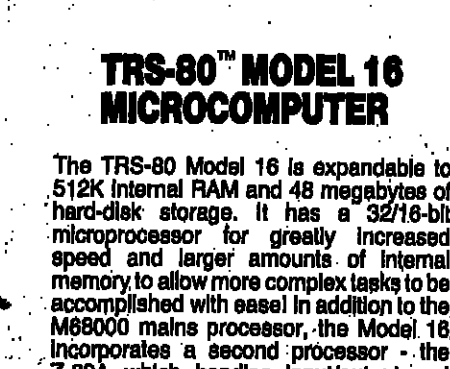
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Focus on telescopic faults

by Jon Turney
Science Correspondent

Britain's largest telescope has a remarkably poor scientific record, according to a new study by the Science Policy Research Unit at Sussex University. And although the instrument's former site was partly to blame the Sussex authors also suggest the Royal Greenwich Observatory's administration was at fault.

The SPRU study, by John Irvine and Ben Martin, "is part of a larger project to develop methods of measuring the performance of large research establishments. They argue that while no single indicator is reliable, if a range of results point to the same conclusion they carry more weight."

When applied to the 2.5 metre Isaac Newton telescope at Herstmonceux, near Eastbourne, their methods revealed a very weak record compared with three similar American optical telescopes operating at the same time, between 1969 and 1978.

They found:

• The Isaac Newton telescope produced seven papers a year, while the American telescopes averaged around 40.

• Papers written at the British observatory cost seven times as much

as their American counterparts.

• American telescopes produced around 20 papers often cited by other researchers, but the British instrument scored only two.

• Leading astronomers ranked the telescope's performance as "third rate."

Much of the disparity in performance can be ascribed to the poor site chosen for the British telescope, the authors suggest. The combination of Eastbourne severely hampered the instrument's effectiveness. This was quickly realized after the telescope was unveiled in 1967, and it is now being moved to La Palma in the Canary Islands, at a cost of £7.5m.

But the SPRU paper also points out that a Science and Engineering Research Council committee recommended in 1972 that the new, 9,000-ft-altitude observatory at La Palma should not be run by the Royal Greenwich Observatory.

The committee's report was never made public, and its recommendation was turned down. But university astronomers interviewed by Martin and Irvine suggested the Isaac Newton telescope's low-grade output was reduced still further by the Green-

wich Observatory's poor back-up services for outside researchers, its position as part of the SERC, which controls public funds for astronomy.

Some interviewees claimed this led to an overconcentration of resources on the Royal Greenwich and Royal Edinburgh Observatories.

However, they also point out the current SERC policy is to develop the Royal Observatory's facilities to meet the needs of university scientists, and that the new chairman of the RGO, Professor Alec Boksenberg is a former university astronomer.

The building which will house the Isaac Newton telescope on La Palma is due to be commissioned in the spring. Professor Boksenberg said this week that when complete, the new observatory, which will also have a 4.2-metre instrument, would be the best in the world.

J. Irvine, B. R. Martin, Assessing RASC Research: The Case of the Isaac Newton Telescope, Social Studies of Science, Vol 13 (1983), pp 49-58.

New forecasting plan still lacks £14m

by Paul Flather

British academics still need another £14m before they can launch a new international policy research centre with similar ventures in Europe and the United States.

The proposal had its first boost recently when the Social Science Research Council confirmed it would inject £300,000 "core support" over the next five years.

Professor Richard Portes, professor of economics at Birkbeck College, London, who put forward the idea, is now approaching other funding bodies here and abroad for the rest of the £1m target.

He has support from the Esmed Fairbairn and Leverhulme trusts and the Rockefeller Foundation, but he is still short of about £14m. He will abandon the scheme if the money is not found.

Professor Portes believes the Centre will bring British economic thinking into international attention and help British economists adopt a wider perspective.

Its model will be the National Bureau of Economic Research, based in Cambridge, Massachusetts, and the Institute in Washington. The NBER acts as a "multiversity" with no tenure academics. Under Professor Martin Feldstein, who heads

Reagan's advisory team, it has built up quite a reputation.

The scheme has won enthusiastic backing from Professor Ralf Dahrendorf, retiring director of the London School of Economics, Mr Michael Kaiser, reader in economics at Oxford University, Mr Michael Posner, the SSRC chairman, and Mr John Fleming, a chief adviser at the Bank of England among others.

Professor Dahrendorf believed the gap in "medium-term economic thinking" in Britain was greater than in any other comparable country. He urged foundations to come forward with the rest of the funds.

Mr Kaiser said the international dimension had been much neglected among British economists at a time when it was clear only concerted action could solve problems.

Mr Fleming said the Bank of England would be sympathetic to such a new research centre.

The House of Commons Select Committee on Education Science and the Arts had to look abroad for an advisor on exchange rate policies and market fluctuations among other things.

Tories could freeze themselves out

Conservative student leaders have taken a decision which could mean their party is not represented on the National Union of Students national executive after the next round of elections.

The National Committee of the Federation of Conservative Students has decided to support its nomination for the full-time posts of NUS president and treasurer, which it has no hope of winning, but not to contest the part-time seats.

Currently there are two Conservative members on the executive, Mr Paul Neil Stewart for president, and Ms Caroline Horrell.

But there is a chance the decision could be overturned either at the FCS conference which is being held before the elections, or by a new national committee which could

urgently review the policy.

The decision was reached by the right-wing majority on the committee, and there are some signs that the rightward drift of the FCS could be reversed at its next conference. Mr Goodman, generally held to be on the left of his party, is running for the FCS chairmanship, and he may enjoy the support of several university Conservative associations who feared the FCS because of its internal problems which culminated in an internal inquiry last year.

Only one of the inquiry's recommendations - internal reforms to be implemented - the student affairs committee will disappear from the coming conference.

Some Conservative students are keen to emphasize their view that the leadership of the National Organisation of Labour Students is in danger of turning the NUS into part of the Labour party campaigning machine in the General Election run-up - and feel that the absence of Tories on the executive would add point to this.

Mr Stewart this week appealed to FCS members to overturn their committee's decision and contest the elections.

One internal dispute within the NUS headquarters has been resolved. The union's National Union of Journalists chapter withdrew a threat to back work normally carried out by press officer Mr Alan Hiscok after he reached agreement with the management over his dismissal. The sacking and Mr Hiscok, who worked with the NUS for just five months, agreed to resign.

Researchers offer to help gypsies find places to live

Gypsies need to be taught how to find places to live and understand the law, more than they need basic general education, a preliminary study of gypsy education has concluded.

The study has been carried out among gypsies in Kent and Surrey by

two researchers belonging to a London University-based consortium. It includes observation of gypsies and groups they encounter - in particular local authority employees - but also offers adult education and support for gypsy self-help groups.

The research findings are likely to be completed in the summer, and will probably recommend

Youthaid blasts new YTS

by Patricia Santinelli

Government claims that the new Youth Training Scheme will abolish school-leaver unemployment as attacked as totally cynical in a Youthaid report published yesterday.

Youthaid says in its annual report that the scheme which will offer one in every two school-leavers a year of education, training and work experience will leave at least half of them unemployed at the end of half the period.

Currently one in two school-leavers are unemployed, and 250,000 under-12 months or more, according to the report.

Youthaid adds that because employers are being invited to open all their school-leaver employees to trainees, it is likely that the scheme will remove from employment one in two school-leavers who currently find jobs.

Clare Short, director of Youthaid, says that it is doubtful that the scheme will make young people better off than those who are not.

"I fear that for the time being we have lost the battle to convert temporary schemes for the young unemployed into a permanent and better training for the bottom 40 per cent. Instead the scheme is likely to be used to undermine the status and pay of all young workers," she says.

"There is nothing peculiar or undesirable about our youth that makes them unemployable. There are simply not enough jobs to go round, and in this situation it is obvious that the least experienced will be squeezed out," she says.

Ms Short exposes the mythical explanations which are being used to justify unemployment, such as the "unemployed are workshy," that Britain's problems are the result of the world situation or that new technology means we can never return to full employment.

A Government decision to cut back supplementary benefits for 17-year-old school-leavers was described this week by Youthaid as a "backdoor attempt to bring down wages on the YTS."

Benefits for these young people who have left school but live with their parents will be reduced to £15.80 as a result of the new Housing Benefit Scheme which comes into operation in April.

The involvement of more local education providers. They will also suggest the use of cassettes rather than printed material and a programme of education not only for gypsies but also for local authority housing officers and others who meet with them.

North American news

Science to grow selectively

from Peter David

WASHINGTON President Reagan's science adviser, Dr George Keyworth, has told Congress that 1984 could be a pivotal year for American science and technology as a result of the administration's decision to adopt a policy of bigger but more selective support for research.

Speaking after publication of a presidential budget which proposes a 17 per cent increase in government spending on research and development, Dr Keyworth told the House of Representatives committee on science and technology that the budget would not lead to a general infusion of federal funds into research and development.

He continued: "No, the growth is selective. It is guided by both intellectual opportunity and long-term relevance to industrial needs. It's decidedly not science for science's sake."

Even in those areas targeted for increased spending, the intention was not to increase the number of projects under way but to identify the very best projects so they could grow into research concentrations which led the world, he said.

"This approach will not necessarily be popular with the broad research and development community, which may expect this growth in research and development to be a response to constrained funding over the years. But our responsibilities are grave these days, and we have to channel resources to those places where we think they'll have



Keyworth: "must channel resources"

the greatest impact," he said.

As an example, Dr Keyworth told the committee that in future years the high technology marketplace would be infused with new materials - exotic compounds with astonishing performance formed through the processing of common raw materials.

The United States intended to capitalize on its expertise in this area with the development of a national advanced materials research centre at the Lawrence Berkeley Laboratory (LBL) at the University of California, he said.

Three factors made the LBL project particularly significant, Dr Keyworth said. It was an area in

which the United States held a decisive lead in basic science; the field had reached the point at which a variety of disciplines stood on the threshold of new discoveries about materials; and it was a field in which new discoveries would quickly spread through American high-technology industries.

Although the initial funding for this centre will be largely federal, we already know of wide industrial interest in working with LBL as the centre develops. We see this facility as a crucible for establishing new means of university-federal laboratory-industry interaction and cooperation," he said.

In general, the federal investment in basic sciences over the past 20 years had not prevented academic institutions from growing shabby, at least in the case of the physical sciences and engineering, he added.

"With few exceptions universities have become less and less attractive places to pursue research careers in those fields. Inadequate equipment and instrumentation are limiting the quality of both research and education."

"Somehow we have arrived at the indefensible position of creating the poorest climate for research in the place that ought to have the best," he continued.

"That has to be changed, both to protect the world-leading basic research capability we've built up over three decades and to make sure the universities can uphold the high standards for education that we have come to rely on from them."

Teachers fail to pass the test

Less than two thirds of 6,943 candidates passed a teaching certification exam in California and only 62 per cent passed both the reading and maths sections. Of the two thirds who passed, only 10 per cent were from ethnic minorities.

Mr Bill Honig, the California state superintendent, said: "If you can't pass this kind of test you really shouldn't be teaching." Many of the teachers who took the test disagreed. They complained that the emphasis on mathematics was unfair to teachers of liberal arts.

The test was devised by the education testing service after an advisory board met to decide what the exam should cover. In California the same test is given to all candidates whether they want a certificate to teach first grade or high school physics. California is one of the 35 states that require some kind of competency test for teachers.

The test will be given three to five times a year and candidates who fail may take it again. The state expects about 30,000 people to take it every year.

United Nations goes into the aviation business

by Tim Land

The first advanced management course for airline administrators from a developing country held last year at McGill University in Montreal has proved so successful that the United Nations now wants to establish a permanent aviation training centre in the city.

McGill's centre for continuing education and Air Canada would jointly sponsor the centre, which would function under the aegis of the UN's International Air Transport Association (IATA) with special assistance from the Canadian government.

A similar university to provide specialist training for senior airline administrators from the developing countries will open at Malmö, Sweden, in July under the auspices of the UN's International Maritime Organization. Both institutions of higher learning will back global efforts to improve transport safety and reduce pollution.

A recent survey conducted by the IATA concludes that at least 1,000 senior staff members of airlines in the developing countries require further training in sensitive and high-priority spheres like security,

technical services, flight operation, data processing, telecommunications, general management, ground operations, commercial and traffic planning, instructors' training and various aspects of safety.

A formal announcement on the establishment of the global aviation training institution is expected shortly following discussions between the Canadian government and the UN. A detailed feasibility study on the centre prepared by IATA is now under consideration in Ottawa.

Several other institutions have meantime expressed interest in giving senior-level airline management courses. They include Britain's IAT Ballbrook College in Bath and the College of Business Administration, University of Hawaii. The University of Amman has decided to create a new aviation faculty.

Students attending the first McGill/Air Canada course in Montreal last year were asked to prepare a recovery plan for the national airline of "Mhosaria", a fictitious African country similar to their own. Air Mhosaria, which was supposed to have lost \$10m a year at the beginning of the course, was assured a bright future by the end.

League leaders fight for research funding

by our North American editor

The best private universities in the United States are beginning to face new competition for research funding, according to an internal report circulated by the Stanford University president, Dr Donald Kennedy.

Dr Kennedy notes in his report that the postgraduate programmes at the leading institutions have been turning out more people with doctorates than are able to find employment in top-ranking universities. Capable scientists are therefore joining institutions which in the past offered little competition.

"The average quality of faculty at a broad spectrum of colleges and universities, both public and private, has been growing significantly in recent years. Principal investigators are becoming increasingly competitive for sponsored research support," he says.

Another reason for the growing competition, according to Dr Kennedy, was the different policies adopted by private and public universities towards charging the research customer for the indirect costs incurred.

At many public universities, the report notes, the cost of administration and facilities used in research are part of the core funding supplied by the state. These indirect costs do not therefore have to be recovered from federal contracts and grants.

"Even more important, most states require that recovered indirect costs go back into the state treasury, rather than to the university research enterprise. Research administrators at these institutions freely concede that they simply do not

expand resources on cost accounting because they see no benefit in doing so. Someone else is getting the money," the report continues.

This meant, according to Dr Kennedy, that there was a two-tier price system among universities competing for sponsored research, parallel with the two-tier price system for tuition fees at private and public institutions. In both cases, state subsidies enabled public institutions to charge less.

The report says that rising indirect research costs, combined with federal funding shortages for many areas of research, had led some government agencies to seek arbitrary reductions in research overhead rates.

"No set of issues has led to greater ill will between research faculty and university administrators across the country and even between faculty members in sponsored research - intensive fields and those in other disciplines," the report says.

What the private universities most fear is a government decision to "cap" the reimbursement of indirect research costs based on the relatively low figures of the public universities.

The report warns: "There is no doubt that high quality private research universities, which rely heavily on indirect cost recovery to fund their operating budgets, would be the hardest hit."

"The result would be a significant down-sizing for those institutions, plus an increase in the average cost of all their activities - including research - which would have to be made up from already scarce funds," it adds.

Call for arms reduction

The American Physical Society has described nuclear war as "an unprecedented threat to humanity" and adopted a resolution calling on the United States and the Soviet Union to intensify efforts to reduce the risk of war.

In addition to adopting the resolution, which was approved by a panel of distinguished physicists with special expertise in nuclear arms control, the society intends to organize public educational activities.

The resolution notes that the world stockpile of nuclear weapons contains the explosive power of more than a million Hiroshima bombs, far more than are needed by either superpower for deterrence.

It predicts that a nuclear war would kill hundreds of millions of people and that its after effects could destroy civilization. It urges the superpowers to intensify "without preconditions and with a sense of urgency" efforts to achieve a fair and verifiable arms reduction agreement.

Boost for life sciences

Princeton University is to invest \$46m in new facilities and faculty positions in the field of molecular biology as part of an initiative designed to bring about a dramatic improvement in the school's research in the life sciences.

The university is appointing two of its most distinguished biologists to the new programme, both nominated from the State University of New York at Stony Brook. They are Dr Arnold Levine, who chairs Stony Brook's department of microbiology and Dr Thomas Shenk.

Mr William Bowen, Princeton's president, described molecular biology as one of the most exciting and important scientific frontiers and said Princeton was determined to be a leader in the field.

New faculty appointments in molecular biology at Princeton, which will include both junior and senior positions, will bring the total number to 19 by 1989.

Civil rights groups attack 'cultural imperialism' of admissions standards

from E. Patrick McQuaid

CAMBRIDGE Minimum standards for admission to public colleges and universities being developed by 28 different states are dividing educators over issues of quality and guaranteed access.

In Massachusetts the all-white, all-male board of regents of higher education has drawn fire from a host of black and other minority legislators, teachers and community representatives for attempting to usher in minimum standards based heavily on standardized aptitude examinations, which are considered culturally biased.

In Florida, civil rights leaders have sued the state over plans to require secondary school students to prove they are literate before graduating. In their action black educators called the proposal part of a larger pattern of "European cultural imperialism". In its effort to raise standards, Florida may reorganize

the curriculum, and extend the length of the academic year.

State education authorities in California, which has one of the largest concentrations of hispanic students in the country, recently adopted model graduation standards, falling short of official mandate. Opponents say the standards go too far in that they not only suggest what courses should be studied but how they should be taught.

Similarly in Idaho, the state board of education has ruled that secondary students must not only complete a specified curriculum in order to graduate but must attain the average passing grade in each subject.

In some cases, such as with Massachusetts, achievement on standardized tests will be used to determine who will go to college and who will not.

Out of a possible combined score in verbal and mathematics of 1,600, college applicants under the Mas-

sachusetts plan would have to attain 800 points on the standardized tests to be considered within the top 50th percentile of their secondary school graduating class. A slightly higher class standing and lower test score would permit them to be admitted into the state's four-year college system. Meanwhile, an open admissions policy would remain in effect at the state's two-year community colleges.

Mr John O'Bryen, one of Boston's two black school committee members, said: "Admissions standards are primarily used to exclude people."

He added that these minimum standards, such as those applied to him, and several other education leaders would have been denied access to higher education.

For nearly 20 years Americans have decried the decline in performance levels of its secondary school graduates, with standardized tests being the yardstick. Toughening college entrance requirements raises

entirely new questions.

The number of people of college age is dwindling while the applicant pool is increasingly made up of a larger percentage of blacks, hispanics, and other minorities. The new job opportunities that the expanding high technology field brings requires several years of training. How then can a state like Massachusetts provide culturally disadvantaged students with access to higher education and ensure that the job market will continue to expand?

The regents' answer is to beef up college admissions standards and introduce a waiver exempting disadvantaged applicants from some of the more stringent requirements of matriculation.

The Massachusetts governor, Michael S. Dukakis has appointed a cabinet-level adviser to address these issues.

Mr Gerard T. Indelicato, who will head the governor's consultancy on education, said: "The changing de-

mographics of the state have to be taken into consideration when formulating any policy regarding college admissions."

An alternative to the regents' plan, offered by a coalition of minority educators and legislators, calls for guidelines rather than minimums. Applicants would be scored on seven criteria: high school records; college entrance exams; letters of recommendation; personal interviews; personal statements from the student; special talents such as athletic, artistic, or leadership abilities; background; and special interests.

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Overseas news

British student is not so badly off...

from Donald Fields

HELSINKI British students appear to occupy the middle ground in Europe in terms of financial and social circumstances. Compared with others, their principal means centre on the housing problem and the erosion of the National Health Service, but they are in the lucky position of receiving grants without exception, and without having to be too worried about their academic progress.

These conclusions are prompted by a comprehensive survey of the social situation of students in 13 countries compiled by the National Union of Finnish Students (SYL). Apart from neutral Finland, countries responding to a detailed questionnaire were equally divided between east and west. Notable absentees were France and West Germany - which failed to meet the deadline and Italy and Spain - which do not have a single national student union.

Barring Hungary and Poland, the Soviet bloc states give a predictably bland account of themselves, and their conversion rates of local currency into US dollars follow the customary suspect pattern.

But the study does have considerable value in outlining, largely implicitly, the amenities and problems of students in the Western countries responding - Austria, Belgium, Norway, Sweden, Switzerland, and the UK. Judging by financial comparisons, Belgian students find it hardest to stand on their own feet, because only about a fifth of them receive assistance from the government and universities, while the average undergraduate can cover only 22 per cent of his study costs from such sources and has little opportunity to earn during vacations.

Evidence submitted by the National Union of Students puts average student costs in Britain at \$305 a month, with basic aid running at \$341. The percentage of costs covered by aid - 67 - is slightly lower than that for Switzerland and Norway. In Sweden, costs are actually exceeded by allowances - but the

former are "probably minimal costs" while the latter overwhelmingly take the form of loans.

A particular British grouse is the high proportion - 25 per cent - of student income going on rent. The NUS told the SYL that its housing work had "a higher profile now than for several years" through representations to the Government and MPs, contact with pressure groups, and work with various student unions. At the same time, its demand for a free medical service for all, including students, contrasted starkly with the satisfaction expressed on this score in Belgium and Norway, and the lukewarm responses from elsewhere.

At \$563 a month, Norway is the most expensive country for study costs, with Switzerland second and Britain third. The other westerners trailed well behind. Compared with his Norwegian counterpart, the British student is paying through the nose for housing but enjoys cheap food. He spends somewhat less on books and travel, but more on smoking and drinks.

Noted for their realism, the Hungarians virtually matched western unions in terms of candour. They want better state assistance so that the financial burden on parents and others can be eased.

The Poles stated that 100 per cent of study loans had to be repaid "in case of worse than good results", against proportions of 25 per cent for "good results" and nil for "excellent progress", and admitted that the amount of scholarships was not satisfactory.

No such strictures poured forth from Bulgaria, Czechoslovakia, East Germany and the USSR, but in one respect these states were shown to be inferior: floor space per undergraduate in student housing. Whereas in the west figures ranged upwards from 12 square metres in Norway to 26 in Belgium, with one student per room in Belgium and the Soviet Union, in the USSR almost uniformly reported six to eight square metres.

... but Germans get back on their bikes

from James Hutchinson

BONN Most of West Germany's 1.1 million students help finance their studies by taking jobs, says a report just issued in Bonn. On average a student's monthly outgoings amount to DM798 (about £210) - whereas the students say they really need a minimum monthly income of DM900 (£238).

The report, compiled by an organization which keeps watch on the social conditions of students, concludes that students are becoming steadily worse off. The proportion of student car-owners has gone down, that of bicycle-owners increased. Student dining halls are booming, and restaurants in the neighbourhood of universities are losing trade.

Professor Hans-Ernst Folz, president of the organization - the Studentenwerk - said the increase in

the proportion of students from workers' families, from 14 per cent to 16 per cent in a year, was to be welcomed. But he pointed out, workers (Arbeiter) accounted for half Germany's employed population.

The federal government's decision to make grants entirely repayable, said Professor Folz, was likely to deter many young people from families with lower incomes from going to university. About a quarter of German students are the children of civil servants, and 37 per cent the sons and daughters of white collar workers.

The federal ministry of education has expressed satisfaction that the average age of German students is going down - an indication that the eternal student is becoming rarer. Some 65 per cent of students are aged between 22 and 25. More than 40 per cent are women, and 37 per

cent of students are receiving maintenance grants.

However, in Hesse, students may be fined for "excessively delaying" their studies in 1981 some DM3 million (£806,000) was collected in what the state calls tuition fees.

The practice was introduced in 1973 - by a Social Democratic government. Last year the fine was increased from DM200 to DM250 (£54 to £57) per half-year term. In 1981 at least 8,000 of Hesse's 100,000 students were running inexcusably late.

The fees are imposed if a student delays his course by more than one semester, changes courses after the completion of five terms, or switches courses more than once.

If it can be shown, however, that the delay is not the fault of the student, the fine may be waived so the deterrent effect of the scheme is not all that great.

State bans capitation fees

from A. S. Abraham

BOMBAY Within a month of taking office, the new government of Andhra Pradesh state in southern India, run by the film star turned politician, Mr. N. T. Rama Rao, who trounced Mrs. Gandhi in the provincial elections in January, has issued an ordinance banning the collection of capitation fees by any educational institution, except those run by religious minority groups.

The ordinance empowers the government to regulate tuition and all other fees collected by an educational institution. These must be deposited in an officially approved bank and used only for purposes directly linked to running the institution.

The measure is aimed at private medical and engineering colleges which charge anything from £2,000 to £3,000 before admitting a student. Because both medical and engineering education are fiercely competitive fields, the demand for places is way ahead of the supply.

By charging special entrance fees, unrelated to regular tuition and other course charges, private colleges have been raking it in. Educational entrepreneurs have sprouted throughout the

country, especially in Andhra Pradesh and the neighbouring Karnataka state, whose capital is Bangalore, hastily setting up medical and engineering colleges, managing to win official recognition and making huge profits.

Both merit and standards are the casualties. Eligible but poor students are kept out, while many of those who get in are mediocre or worse.

Although a hue and cry has been raised against the capitation fees, the practice has thrived because it means more available seats through private enterprise than public institutions can provide. In exceptional cases, private colleges charging capitation fees have also set up worthwhile institutions and those who run and benefit from these argue that the capitation fee system should be regulated but not abolished since the government cannot afford to close the gap between the demand and supply of seats in advanced professional institutions.

However, the government has decided to allow private colleges to continue to charge capitation fees but to set up and administer their own educational institutions, the Andhra Pradesh government may have unwittingly given educational entrepreneurs a loophole which they can be trusted to exploit.

Mr. Rama Rao, who is a member of the Social-ist Party, but he has known Jean-Pierre Chevènement, minister for research and industry, for years. He now finds himself in the unusual position for a man of the left with very real power and considerable funds to hand out.

It is simply inconceivable that a man like Godelier might wield such power in Britain. The equivalent might be Ralph Miliband, former professor of politics at Leeds University, the chairman designate of the Social Science Research Council. But even a government headed by Michael Foot, the Labour leader, would balk at selecting a man so anti-establishment.

In a characteristic and symbolic gesture he moved his chair off the podium to the same level as his audience before launching into a wide-ranging talk on the power of intellectual enquiry in France; the crisis of Marxist thought; the rôle of the Communist Party and the state; and the "really big change" in French society that occurred in 1981.

Godelier is an engaging man with identifiable French style. He is attentive to detail, modest of his own reputation and is gently and agreeably moving into middle age. But he is still eager and excited about the prospect of wrenching French social science research from the direction it has been stuck in for the past 20 years of Gaullist power and giving it more money at last. British social

Godelier brings a soupçon of French intellect to Cambridge

It was to have been a fairly private affair: a few Cambridge friends, a few old comrades, a handful of admirers, intellectual rivals and students. Maurice Godelier, French socialist and Marxist anthropologist, was to speak on the May 1981 election in France and the Marxist Socialist imagination and give some personal views on the Mitterrand government. His was the opening seminar of a series on "The French experiment" held at King's College, Cambridge.

By the time the meeting opened, rows of extra chairs had been put out and more than 100 were present. Such is the drawing power of Godelier, as both intellectual and director of the Centre National de Recherche Scientifique, the Paris-based equivalent of the five British research councils rolled into one.

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scientists can only glance enviously across the Channel.

Controversy over his appointment last year thrust him back into the limelight, when the director general and president both resigned. His report on the state of social science - suffering from political neglect, financial undernourishment, and an overall lack of democracy - has kept him in the public glare.

The report presented to Chevènement last October detailed the steady decline in support for the social sciences, a 26 per cent fall in state funding from 1976 to 1981. Why? The report says there was a determined effort to contain the "subversive" ideas of 1968. The *ancien régime* made a strong effort to "neutralize" social sciences, culminating in huge cuts in 1980, it adds.

The report was a massive effort, running to two volumes of 560 and 211 pages. It makes a fascinating document for study, containing detailed surveys of the different subject areas. It was based on widespread consultations with academics, civil servants, trade unionists and other community representatives. It involved 17 researchers sending 8,000 questionnaires, receiving 2,000 replies, holding two meetings a week for five months, and circulating all drafts for comment.

"We now have an idea of what is thought important in the French intellectual structure," Godelier said. The problem was that social science in particular had been ghettoized, and what he now planned was a "new dialogue" between science, government and society.

"The heart of the people was broken," he said, referring to the cuts. "You are pushed by the state into a ghetto from the outside, and you add to it yourself from the inside." Social scientists had been viewed as subversive and sociologists with beads seen as damaging the university tradition. "That is just not true. I want to turn the page of 1968," he said.

How will the new dialogue work? He gave as an example a new type of research contract between the CNRS and private companies, such as Renault, to study how society really worked. Godelier thought firms would cooperate because they wanted to improve quality and this was done by knowing about the cul-

ture and life of the people. Unions would cooperate because they wanted to know what motivated people beyond the world of private and personal interest. Fruitful discussions have already started with the French equivalent of the Confederation of British Industry.

Godelier did not want to be drawn on the differing prospects for social science on either side of the Channel. He would only say that the prospects in France were brighter. His report criticized the fallacy of seeing an opposition between fundamental and applied work, a debate so much in evidence in Britain during the past 18 months. "We do not want to tell people what to do. We will add new money and suggest new directions," he said. He particularly wants to encourage women's studies, which he feels is an area in which France has lagged behind both the United States and Britain.

He pinpointed a simple contradiction in the debate over whether social sciences were indeed "sciences". He agreed that social scientists were often accused of "loose" methodology. "You must reply you cannot put society into machines or study it in a laboratory," he said. But when social scientists set out to collect social data and run fieldwork exercises these same people would turn round and say it cost too much, and should not be done, he added.

Godelier built his reputation as a Marxist anthropologist by challenging the strict evolutionary model favoured by Soviet anthropologists. He was influential in the French group in the 1970s which worked around the structuralist ideas of Lévi-Strauss. He has made a number of trips to Papua New Guinea, studying social rituals of the inhabitants. Ironically on one trip he missed the 1968-May Day demonstrations in Paris.

One idea Godelier discussed at the seminar was the current crisis faced by Marxism. Less and less accepted, it is always linked in popular thinking to Stalinism and the purges. He himself went to a Catholic school and became a Marxist at 18. At 48 he remains very much a Marxist. "I know I can read Marx without wasting my time. And I know tomorrow that I am not going to become an anti-Marxist, or transfer to Stalin."

Godelier is also keen to do something to promote British understanding and interest in French social sci-



Godelier: 'I want to turn the page of 1968'

environment. In his report he set himself talks in the social sciences. One element is his plan to launch a massive family survey of France comparable to the famous 1802 Napoleonic census. He wants to trace the genealogy of different groups in all the different regions in France back to the nineteenth century, highlighting socioeconomic relations, social mobility, relations between old and young, between men and women and so on.

Another element is his wish to promote links between French and British social scientists. He feels British academics are particularly good in anthropology, history, oriental studies, economics, education studies and archaeology. An exchange of studentships is already in force and a new Franco-British accord on collaborative research has just been finalized. This will involve teams in the two countries working on matching projects in areas such as poverty, defence studies, criminology, and mass communications.

Godelier is also keen to do something to promote British understanding and interest in French social sci-

ence, and he has begun discussions on sponsoring a new social science library in London and perhaps a bookshop for French academic books. The seminars at King's have been backed by the French with a £1,500 grant to pay the travel costs of prominent academics. Michael Ignatieff, a fellow of King's and one of the organizers, explained at the start of the seminar that it was sometimes hard to persuade French academics to come to Britain to talk. They seemed to feel Britons had been left behind intellectually.

Godelier himself just published a new book on Papua New Guinea and he has another in the pipeline on the Marxist theory of transition from early society to capitalism. He is preparing another, but that is secret. "You see everyone knows then that I am not just some bureaucrat," he said.

Les Sciences de l'Homme et de la Société en France, by Maurice Godelier, from La Documentation Française, Paris 1982.

Paul Flather

Danes accused of humanities attack

from Antelise Hopson

COPENHAGEN The Danish government has been accused of "mounting the humanities" after ordering the closure of a university syllabus and a range of teacher training courses.

The new minister of education, Mr. Bertel Haarder of the liberal party, has decided to abolish the basic studies programme within the humanities at the University Centre of Roskilde, (RUC), on Zealand.

This is one of the three basic studies programmes in preparation for specialization at RUC. At the same time humanities courses for future upper secondary school teachers will be shut down together with the corresponding courses within social studies and biology because of poor employment prospects.

In return the ministry of education is planning new courses with vocational education and training as well as administrative data processing. In a report published by the ministry, it is claimed that the abolition of the humanities is not based on economic measures but that other courses on RUC must be strengthened; the necessary number of important voca-

tional courses must be obtained; and to ensure that the humanities on other institutes of higher education can survive.

The chairman of the research council for the humanities, Professor Jørgen Brøndsted, said: "I feel that this is a brutal destruction of the humanities."

The decision should also be evaluated in view of a report prepared by the Council for Research Policy and Planning and RUC for the ministry of education. The report dealt with research done on RUC as a whole and not with individual researchers or projects.

The university centre, with its 2,400 students, is the smallest in Denmark and only 10 years old; but during recent years it has established new fields within research. The council is warning against changes which may result in the destruction of promising research projects.

The report evaluated the research done during the past three years by RUC's 170 scientific collaborators. In comparison, the University of Copenhagen has 1,400.

Mr. Haarder has said it is not his intention to halve the university cen-

tre but to give the courses a different priority. Following a cabinet meeting, the minister stated that his plan for RUC was identical with that of his predecessor, Mrs. Dorte Bennedsen of the Social Democrats, apart from minor additions. However, Mrs. Bennedsen is strongly repudiating the plan.

As a consequence of the decision, the students of RUC occupied the central earlier this month, bringing sleeping-bags and provisions. At the same time a lot of the scientific and administrative personnel went on strike, resulting in a complete halt of the education.

In Copenhagen a protest march was organized by the students of RUC about a hundred of whom stormed the building of the Federation of Danish Industries in an attempt to paste up posters in protest against industry's influence on the future of RUC. Following an extraordinary meeting of the National Union of Danish Students, the country's 67,000 students within higher education were summoned to stay at home for a couple of days in protest, various committees and working groups have been formed.

charge is that "Pigeon Canyon" promotes "Serbian chauvinism" at the expense of other ethnic groups.

Recent high level party meetings to discuss the recent rise of "nationalist extremism" among Serbs have attributed the phenomenon to the "Pigeon Canyon" play, taken as a symbol of the Party's failure to resolve the historical conflicts and tensions between the various "nations" which make up the Yugoslav federation.

Since the festival official criticism of the play has escalated. The main

American expelled

A US citizen of Polish origin, Gareth Sobczyk, a lecturer at Wrocław technical university has been expelled from Poland on account of alleged "hostile and socialist activities".

According to the provincial security headquarters in Wrocław, the state was in possession of "vast material" evidence of Sobczyk's involvement in activities "aimed against the security interests" of Poland. In particular he had allegedly maintained contact with underground Solidarity groups, taken part in the distribution of clandestine publications, and participated in "anti state demonstrations" during the period of martial law.

The police also said he was "in the know" about the running of the clandestine "Radio Solidarity" and, on behalf of the underground, had carried out a survey of the quality of reception, in the Wrocław area, of foreign radio stations beaming "subversive" transmissions to Poland.

Although Mr. Sobczyk is a mathematician, he was employed at the university as a teacher of English. He therefore fits neatly into the unique pattern of dissent in the Wrocław academic community, where, in the pre-Solidarity era, the underground "Flying University" courses were organized by a group of mathematicians, although the lectures themselves concentrated on the humanities and social sciences.

On December 22, 1982, Mr. Sobczyk was informed that his residence permit would not be extended; and that he must leave Poland by the end of the year. Instead, he went into hiding with underground activists.

On February 2, he was picked up at Warsaw Central Railway Station, during a random identity check.

More teaching staff removed

from Bernard Kennedy

ANKARA Martial law authorities in Turkey have used their extraordinary powers to remove a further 13 university teaching staff from their posts. Ankara's faculty of political sciences has been hit especially hard, losing four members of staff including professors Bahri Savci and Cevat Geray.

The other dismissals came at Istanbul University and in the medical faculties of Ankara and the Aegean universities, under martial law regulations, the military authorities can order all public employers - including universities - to dismiss any individual on their pay rolls.

No reason has given for the sackings, which follow five similar dismissals at Trabzon, Ankara and Gaz University. One theory is that the Higher Education Council is using martial law conditions to remove independently minded professors and lecturers without publicly taking responsibility.

Some 200 university teaching staff have been dismissed by the new university authorities (themselves since the academic year began, but the direct intervention of the Martial Law command is the first of its kind since the earlier days of military rule, and has increased unease and uncertainty.

The five sacked previously were Professor Erdem Aksoy, former rector of the Black Sea University; his wife Özgönül; Professors Fıncı Bulutay and Burhan Cahit Unal of Ankara University and Yalçın Keskioğlu of Gaz University, which is also situated in the capital.

Martial law has been in force in most of Turkey since well before the military takeover of September 12, 1980. The authorities are not obliged to give a justification for the sackings.

A woman's placement...

Olga Wojtas on a seminar on graduate job prospects held at Strathclyde University recently

"There was this job with an engineering firm I really wanted," one young woman student told a Strathclyde University seminar on women graduates in employment. "I didn't get an interview, and I thought fair enough, but I've just discovered they've interviewed the guys in my class for the job."

There was an outburst of criticism, and Professor Angela Bowey, of Strathclyde's business school, feels this in itself shows there has been considerable moves towards equality, since a decade ago there would have been little surprise about discrimination. And it appears that cases of outright discrimination against women graduates are comparatively rare.

However, the picture which emerged from the Strathclyde seminar was predominantly bleak. Professor Bowey, regional commissioner for Scotland of the Equal Opportunities Commission, suggested that students who felt they had been unfairly missed for interviews could ask to see the qualifications of the other applicants.

"You undoubtedly wouldn't get that job, but I don't think the organization would do the same thing again."

Wryly, Carol Ferguson, another speaker, added that the firm could easily cover itself by calling women for interview with no intention of giving them a job.

Carol Ferguson, an economics graduate, was encouraged to train as an accountant by the firm with whom she was a secretary. She is now an oil analyst and partner in a stock-broking firm, and one of 44 female members of the London Stock Exchange among "thousands of men".

Shirley McKenna said she had come across only "trivial discrimination" during her four years in industry, with people assuming she was a secretary, and expecting her to make coffee for meetings. And during her engineering training after university, one tutor advised her to specialize in electronics. "He said I'd never have to lift anything heavier than a screw driver."

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career with having a husband and family. And Shirley McKenna, an engineer specializing in robotics, said that although she was married, she felt it was an advantage to be able to say at interviews that she had no immediate intentions of starting a family.

Many employers still seem unaware that certain questions could lay them open to a charge of sex discrimination. Ms. McKenna was asked how her husband would react if she was not at home in the evening to prepare his meal.

"If you don't explain tactfully that this is discriminatory, firms are never going to stop asking these questions," said Professor Bowey, but she agreed it took considerable courage to complain.

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Geoff Maslen reports how Australia's colleges and universities seem to be losing their sense of direction

All mixed up down under

If, as some claim, Australian higher education is at a crossroads in the 1980s, then it seems the road signs have been torn down and no one knows which way to move next. At no time in the past 20 years has there been so much confusion, not to mention gloom and even despair, on campuses around the country.

The loss of a sense of direction is due in part to the confusing division of powers between the Commonwealth government and the states and the increasing tendency of the federal government to interfere in areas where universities, particularly, have long thought themselves autonomous.

At the time of federation, the states retained their legislative powers over education and the Australian constitution does not grant the Commonwealth specific legislative authority in regard to education (except in its own territories and the provision of financial benefits to students). But when the states agreed to have the Whitlam Labour government take over the funding of universities and colleges of advanced education in 1974, the real power of the states was severely reduced. The Commonwealth demonstrated this most effectively when it forced the mergers of 30 colleges with universities and other colleges - almost without exception against the will of those involved - and closed down certain engineering courses, simply by stating that if this wasn't done, no money would be made available to those institutions concerned.

Moreover, although universities and colleges are set up under state laws that give the councils that run them considerable autonomy, all the states and the Northern Territory now have post-secondary authorities which increasingly have sought to control and regulate the establishment of new courses in higher education institutions and to incorporate university and college development within comprehensive state plans for tertiary education. Problems of coordination between the two higher education sectors have not been helped by the inclusion of technical and further education as a responsibility of both state and Commonwealth governments.

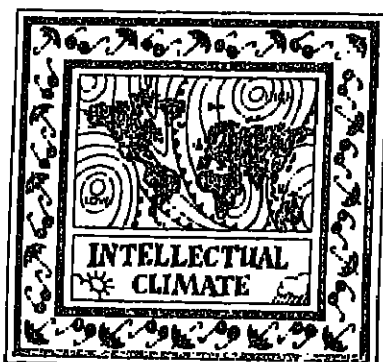
But if these administrative mazes are sources of confusion, it is the decline that is everywhere apparent that is the cause of the gloom and despair. One example is the massive 18 per cent fall in the numbers of young people seeking to go on to further education over the past five years. This has been accompanied by decreases in the amount of funding available to universities (and, to a lesser degree, colleges of advanced education) and the greater interference by governments in the structure and operation of the tertiary sector. For the first time, too, academic numbers at Australian universities in 1982 began to fall - an inevitable result after nearly a decade of static or, more recently, falling financial support.

Not only have the academic professions hardened as the number of promotions, transfers and resignations declined, but when academics do leave their jobs - for whatever reasons - they are either being replaced by more junior staff, often on short-term contracts, or the positions become permanently vacant.

Although academics, through their staff associations, and vice chancellors collectively, have sought to draw the public's attention to their plight and their increasing loss of autonomy, they have for the most part uncovered little interest and even less sympathy.

Even those members of the community who are graduates do not regard themselves as allies of universities. If anything, the lay community is inclined to be suspicious of universities as feather-bedded institutions, remote from and uncaring about the daily lives of most citizens.

According to Max Charlesworth, a professor of philosophy at Deakin University and one of Australia's more outspoken and perceptive



thinkers, universities here have done precious little in the way of confronting their society or playing the part of social physicians. They have been, Charlesworth says, barely concerned with giving Australian society what it wants. Australian universities have never seen themselves as the intellectual ombudsmen of their society, not have people outside the institutions looked to them to act as social consciences or Socratic critics.

And yet, Charlesworth argues, the university ought to be concerned with social and political issues in its own way, within its own properly scholarly perspectives. "By talk, and critical analysis and discussion, and demystification and debate, and placing particular issues in a larger historical and social context, and the university ought to be an agency of civilization, in the basic meaning of that term, that is to say it ought to be concerned with keeping rational dialogue going when and where it threatens to break down."

Charlesworth points to a crucial issue in Australian life today. For this community is polarized as it has never been before. The sucking of the Whitlam Labour government in 1975 by the vice regal representative, Sir John Kerr, still casts a long and divisive shadow across political and social life. The restoration of the Liberal-National party coalition, headed by Prime Minister Malcolm Fraser, put a Conservative government in power just at the onset of a sustained world-wide recession. Here, as elsewhere in the Western world, Conservative strategists responded to the recession by calling for cuts in the scale of state intervention and the size of the state itself. The aim, according to Professor Bob Connell, a sociologist at MacQuarie University, was to reverse the gains made by the working class in the latter stages of the long postwar boom, and the accompanying squeeze on profits.

"Along with a direct campaign to roll back real wages, or at least halt their growth, has come a Conservative campaign to squeeze those parts of the state which provide the 'social welfare', conspicuous among them, welfare and education," Connell writes. "The object is a general redistribution of income back towards the rich. Partly this reflects the class interests of the Fraser government - it is reputedly the wealthiest cabinet in Australian history. Partly it reflects the policy idea that to make a capitalist economy work successfully you have to make sure that all capitalists in general do well out of it."

But, as Connell acknowledges, there are a good many cross-currents. It is dangerous, for instance, for politicians to "take the axe to the roots of established institutions," so the Fraser government has opted for pruning rather than axing. In setting up the Tertiary Education Commission - an umbrella organization which incorporates universities, colleges and technical and further education councils - in 1977, the Fraser government, says Connell, demonstrated its caution. The TEC would not have been set up if the object was to slash higher education right back. Its brief was to rationalize an area of federal funding that was going to continue at something like existing levels. Although established as a statutory authority to give independent advice to the government, the TEC has been increasingly seen as an arm of government.

Nevertheless, the dreadful rise in youth unemployment over the past two or three years - it is now as high as 20 per cent for 17 to 19-year-old males - has broken what Connell calls the boom-time nexus between schooling and employment, and rapidly undermined the education system's ability to make legitimate the inequalities of the labour market.

"To have widely accepted legitimations of inequality is vital to a capitalist system, and if one set breaks down, another must be devised," Connell says. So the federal government then unexpectedly turned to transition education programmes that would smooth the passage of working class children on to the labour market or into technical and further education programmes. Tertiary and further education, formerly known as the Cinderella of post-secondary education, suddenly became glamorous in the Fraser government's eye and money allocated to it by 1984 will have probably doubled from what it was in 1975.

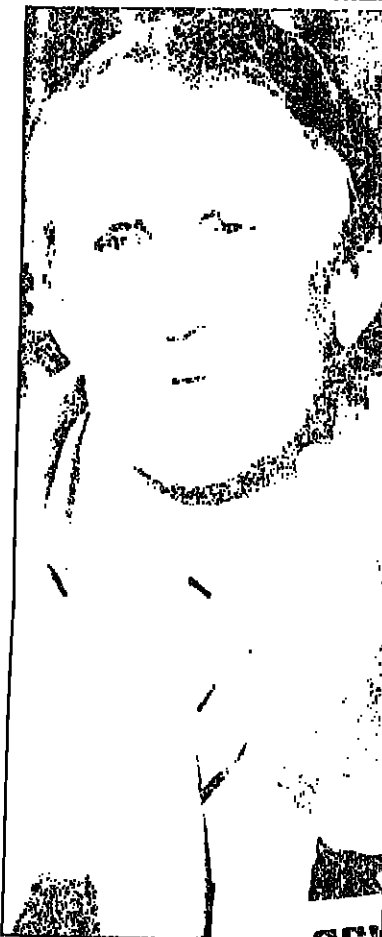
ITAFE institutions are centres for the working class, universities, and again to a lesser extent the colleges, remain predominantly socio-economic elitist. Only about one in five university entrants are the children of unskilled or semi-skilled workers who make up some 50 per cent of the whole population in Australia. On the other hand, almost 80 per cent of those entrants come from professional families, whose fathers constitute only 8 per cent of the male population, or from employer and managerial social backgrounds where the fathers make up 15 per cent of the male population.

And while the Fraser government has shown no commitment to altering that situation, it has attempted to redirect the energies of higher education institutions away from areas like social welfare and education (which, in Connell's terms, represent an indirect subsidy to the social wage, in the form of training) and into areas like management, accountancy and engineering. This effort, says Connell, represents an indirect subsidy to capital. The drift, then, is to turn mass education towards a vocational (or apparently vocational) direction, and to divide it more sharply from the education of the elites.

Recognizing this, some academics have now begun to argue that the historical split between universities and colleges of advanced education has been a mistake. Alan Lindsay, for instance, of the school of education at MacQuarie University, argues that there is a false distinction between the work of universities and colleges. The decision to create a binary system of higher education, Lindsay says, reaffirmed Australia's adherence to British educational tradition with its relatively narrow and elite approach to universities, rather than adopting the American model of a more comprehensive university and college system, catering for a wide range of student abilities and fields of study.

Max Charlesworth has also considered this issue and he points out that there was no compelling educational rationale for introducing a binary system. Essentially, says Charlesworth, whatever their respective emphases and their different forms of organization, universities and colleges provide substantially the same kind of education. "All attempts to distinguish them in a systematic or formal way on grounds that universities deal in 'pure knowledge, whereas the colleges deal in 'applied knowledge' or that colleges have a 'vocational' bent whereas universities have a 'non-vocational' bias, or that universities go in for 'research', whereas colleges go in for 'teaching', or that typically universities provide degrees whereas colleges typically provide diplomas - all these attempts provide diplomas out any real basis in education principle," Charlesworth says.

"The more one looks behind the myths and rhetoric used to justify the binary system, the more one sees it as the result of historical ad hocery," he adds, and says that the tertiary education commission with its three councils,



Malcolm Fraser: funding an indirect subsidy to capital.

simply "sanctifies the historical ad hocery that has produced the present system," Charlesworth maintains that the binary system has had bad effects on both elements of the system. On the one hand it has reinforced the elitism of Australian universities since the only way they can distinguish themselves from the colleges is by emphasizing their commitment to research (and thereby downgrading teaching), and claiming to be centres of excellence (and thereby restricting access to higher education). On the other hand, the colleges' emphasis on teaching, vocational training and applied knowledge has, by and large, "inhibited research and led to conditions of work for academic staff which make it very difficult to carry on higher education in an appropriate way."

In a similar vein, Professor David Beswick of the faculty of education at Melbourne University, says: "It is a gross mistake to think that there are two types of students, those whose interests are fundamental and theoretical and who are properly placed in colleges. Both Beswick and Charlesworth have called for a dissolution of the distinctions - a blurring of the colleges so that eventually only comprehensive universities would remain.

The Tertiary Education Commission, however, has shown no inclination to adopt this view. On the contrary, in its report for the 1982-83 triennium, the TEC recommended that the universities be recognized as having a special institutional commitment to scholarship and to research and to training scholars and research workers. Moreover, it argued that colleges should not be given special funds for research in triennial grants, and that the advanced education sector should emphasize its vocational objectives.

In the event, the federal government decided to allocate A\$10m (\$3m) over three years to special centres of research. When it called for applications for 10 centres to be established, 327 submissions flooded in. This move to give more money in bigger lumps to fewer researches is part of the new Conservative line in research funding, according to Bob Connell. He says the idea that this will encourage excellence is hogwash. "What it actually encourages is elitism," he says. "The Universities Council and the TEC have bought the argument."

The Fraser government, for its part, with its consciousness of class and power and its demonstrated inability to make any changes - such as merging universities and colleges - that would profoundly effect the face of Australian higher education. Such a move will be left to some future reformist government.

Reading from the right...

One of the most striking features of contemporary academic life - though perhaps most noticeably in English studies - has been a revival of serious interest in peripheral and often ideologically antagonistic figures. The predominance of Marx and Weber in sociology research and teaching is being challenged by a renewed interest in neglected figures like Carlisle, Buckhardt, Peguy and Hintze. From the other side of the ideological divide, the conservative quarterly *Subsidiary Review* has launched a series, examining figures of the left from a rightist viewpoint.

While theoretical developments in a whole range of academic disciplines do seem to have led to a more pluralistic and diversified atmosphere of inquiry, there is some grounds for removing ideas from their immediate or historical context. After the passage of 50 years from Hitler's rise to power, it has become possible to examine seriously the careers and ideas of figures of the far right like Charles Maurras, Drieu la Rochelle, Count Gobineau and Houston Stewart Chamberlain (see *The Times* October 8, 1982). It is significant that it is largely scholars of the left who have subjected these thinkers to serious analysis.

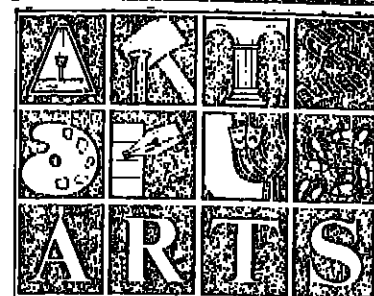
As liberal thought becomes archaological in its methods, journals of the right like *The Salisbury Review* have taken up the responsibility of engaging more immediate issues. This can only be a source of anxiety. In the United States, *Pantheon Review*, born out of the John Reed Clubs and a one-time proponent of cultural anti-Stalinism and for a time, Trotskyism, has become a tired, nostalgic journal with little active political content. Again, the slack has been taken up by the academic and political right.

The rise of the new right has been one of the most significant intellectual developments of recent years and, after feminism, one of the most compelling. What remains unclear is whether the appearance of an ideologically articulate right contributes to diversity and pluralism or whether it merely points to the disarray of left-liberal thinking as William Phillips hinted in a recent *Pantheon Review*.

The current *Salisbury Review* contains a range of material and a style of polemic that would have been unthinkable 10 years ago and still surprising. In an article on the "Politics of Sex," R. A. D. Grant attempts to restore the distinction between "lust" and "love"; K. J. Stratford discusses "left/chaivism" as (ironically) the highest stage of capitalism; Mark Le Fanu and C. H. Sisson examine such unfashionable figures as George Santayana and the 16th century theologian Hooker. The coincidence of such concerns and figures with the philosophy of John Locke, Conservative politics and Anglicanism is a striking newcomer to public academic debate, though doubtless such currents have survived and sat out a long liberal consensus.

Like their ideological counterparts at the Social Affairs Unit, the *Salisbury Review* editors are not uncomfortable with a provocative, glibly right. The most recent editorial called for the exclusion of the "right to work" from the canons of natural law, suggesting instead the salutary effects of military conscription. "By imposing discipline, it enables the subject eventually to dispense with commands. It also relieves young people of the immediate anxiety of unemployment, while fitting them better for action than the pit-sodden ethos of the welfare state." If this is to be one position in a properly dialectical public and academic debate then such thinking may indeed be welcome. If however, this is to be a new consensual default of more clearly articulated liberal thought then there is cause for alarm.

Brian Morton



You've read the book...

Stage or screen adaptations of literary texts are, conventionally, either "faithful" or "bold". In the past year, Yorkshire Television's *Brideshead Revisited* was seen by some as an almost slavish rendering of Waugh's text. At the same time, the Karel Reisz/Harold Pinter *French Lieutenant's Woman* was hailed as a brave and original recasting of John Fowles's complex novel.

The *Guardian*/BFI lectures currently being delivered at the National Film Theatre have been considering, under the general title "From the Page to the Screen", various aspects of the process of adaptation by which literary texts become filmic "texts". Inevitably, both *Brideshead* and *The French Lieutenant's Woman* were high on the agenda and the subject of specific discussions by Melvyn Bragg and Terry Lovell respectively.

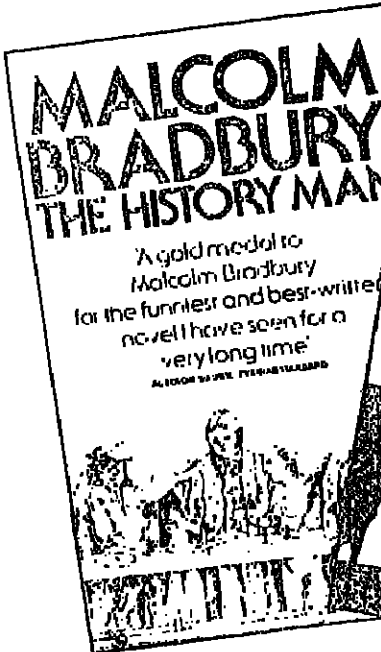
In her feminist account of the film, Ms Lovell came closest to a clear articulation of the nature of literary adaptation. We have become accustomed to seeing novels, often many years old, often "classic" texts, riding on the back of a new film or TV series into the bestseller lists. However, the precise relationship between the two is not, Terry Lovell argues, at all clear. It is common enough to see a film credited to the bestseller or classic on which it is "based"; the resulting film very often bears only passing resemblance to its original - Ridley Scott's recent *Blade Runner* was purportedly "based" on the late Philip K. Dick's science fic-

BRIAN MORTON discusses some of the issues raised about the adaptation of novels to film and television in a series of lectures at the National Film Theatre. RICHARD ALLEN CAVE reviews an attempt, at Richmond's Orange Tree Theatre, to stage Greek tragedy in a small auditorium.

ture tale *Do Androids Dream of Electric Sheep?* but, mercifully, bears little resemblance to it. True literary adaptation differs in that the filmmaker is striving to transfer something of the "literariness" of the original text to an entirely different and even antagonistic medium.

John Mortimer's script for the TV *Brideshead Revisited* depended heavily on large, unedited chunks (delivered as voice-over) of Waugh's most consciously "literary" but arguably least successful novel. John Fowles, unlike Waugh still proud to supervise matters, was determined that his much-admired text should not be fetishized and that his adapters should be allowed to introduce entirely new narrative strategies to translate the modernist themes of the novel into celluloid. It would be perfectly possible to abstract a smug melodrama of sexual manners from *The French Lieutenant's Woman*. Not so long ago, ITV surgically removed one tiny strand from *The Wings of the Dove* and presented it - let-down by its bare breasts and all - as a faithful to Henry James the attempt was almost insidiously bold. In *French Lieutenant's Woman*, all the major deviations from the text were made in the interests of a more truthful approximation of Fowles's structure on the screen.

All the contributors to the *Guardian*/BFI series have stressed the gap between literary and film or television narrative. Looking at recent



ermists like William Gass would call a centre of linguistic energy; on the screen, she occupies most, perhaps too much, of our attention. His moral and political stances are, by 1981, that little bit less convincing as fictional premises; what served as satire in 1976 becomes nostalgic stuff. The novel (Bradbury's, Kirk's, 1976) seems a little threadbare, removed from its original fictional context and the TV version depicted on unevenly ironic devices - Mungel en famille, heavy dramatic pointings, symbolic snapshots of *Don Giovanni*, and a notorious end-captation announcing Kirk's defection to respectability and the Right. As Philip Simpson pointed out, both the novel and the TV version were put to explicit political ends. However, Bradbury's embattled liberalism of 1976 looking back at 1972, was a long way from the life-support liberalism of the 1980s, looking back at both the 1976 of the novel's appearance and the 1972 of its plot.

Catherine Belsey's account of Shakespearean film adaptation again showed the differences generated by time and genre. Shakespeare on film has always been problematic, but, however Shakespeare can be adapted to reflect contemporary issues (something which is done on stage) the real differences between the canon and film or TV versions are structural and formal rather than political and moral. Fictional texts, on the other hand, operate from premises very different from those of film and television. Dramatization of any sort inevitably demands some recasting of the original. If the results are often crass, they are just as often challenging and satisfying.

Brian Morton

The final lecture in the series, David Lodge on Leavis's "Great Expectations", will be given next Tuesday lunchtime at the National Film Theatre.

Events

New exhibitions:
From tomorrow, Serpentine Gallery, London. *Alive to it* by Jeffery M. R. Hill and ten other artists. Exhibition will later tour to Hull, Plymouth and Sheffield.
From tomorrow, DLI Museum, Durham. *Coal: British mining in art 1860-1980*.
From February 22, Bloomsbury Gallery 2, Institute of Education, University of London. Chris Morrell, paintings.
From February 26, Arts Centre, Aberystwyth. *Superhumanism*: paintings and sculpture from the Nicholas Tredwell Gallery.
From February 28, Triangle Arts Centre, Aston. Larry Burrows: photographs.
From March 4, Scottish National Portrait Gallery, Edinburgh. Bill Brandt portraits.
From March 8, Cleveland College of Art and Design, Middlesbrough. George Fullard: drawings.

Events:
Tonight and tomorrow, Royal Northern College of Music, Manchester. Ballet Rambert.
Tonight and tomorrow, Arts Centre, University of Warwick. University Opera Group presents Ethel Smyth's opera *The Wreckers*.
Until March 5, Newcastle Playhouse. Premiere production of Ken Hill's *The Max Heugler Account*.
Tomorrow, Durham Cathedral. John Aldis Choir: Gabrieli, Britten, Bedford.
Tomorrow, Cinema, University of Essex. Five B-leatue films, including Edward Wood's *Wild Women of Wonga*.
Tomorrow and Sunday, Theatre Workshop, Edinburgh. Mark Saunders conducts a *Commedia dell'arte* workshop.
Sunday, Tyneside Cinema, Newcastle. Kurt Vonnegut reading and talking about his work.
Monday February 21, Arts Centre, University of Warwick. English concert: an evening of Baroque trio sonatas. Trevor Pinnock (harpsichord).
Monday February 21 until Saturday 26, Grand Theatre, Leeds. London Contemporary Dance Theatre in repertoire.
Tuesday February 22, Lippin Theatre, Newcastle Poly. Pocket Theatre Cumbria in an adaptation of *Hard Times*.
Tuesday February 22 to Saturday 26, Arts Theatre, Cambridge. David Rabe directs members of the university in *The Women of Trachis*, performed in the original Greek. Music by Maervyn Cooke. This production marks the centenary of the university's Greek plays.
Wednesday February 23 to Saturday



Richard Hamilton's "Swinging London" (1968) is included in a new touring Arts Council exhibition *Private Views*, comprising twentieth-century portraits and self-portraits. The exhibition visits Barnsley from March 12, thereafter visiting Norwich, Bradford and Milton Keynes.

26, Triangle, Aston. Studio company presents three short plays: Peter Barnes's *Leonardo's Last Supper*, David Edgar's *Ball Boys*, and Barrie Keeffe's *Six*.
Thursday February 24 until Saturday 26, Gaiety Theatre, Stafford. Opera *Nix: Così Fan Tutte, Der Fledermaus*.
Thursday February 24 and Friday 25, Westminster School, Dean's Yard, London. Horvath's *Der Junke Tag*, performed in German.
Friday February 25, Assembly Hall, University of Strathclyde. University chorale and chamber orchestra: Mozart, Haydn and Beethoven.
Friday February 26, Arncliffe Centre, Bristol. Yilmaz Gunay's film *Yol*.
Saturday February 26, Hugh Stewart Hall, University of Nottingham. Chamber Orchestra Concert: Dvorak, Weill, Beethoven.
Saturday February 26, Diamond Theatre, New University of Ulster. Cécile Ousset (piano).
Sunday February 27, St Machar's Cathedral, Aberdeen. St Matthew Passion.
Monday February 28, University of Surrey. Lunchtime. Jiri Stanislav in *What's Mine is Yours*.
Monday February 28, to Saturday March 5, Theatre Royal, Norwich. Sadler's Wells Royal Ballet.
Monday February 28 to Saturday March 5, Frouch Institute College, Rushampton.

Presenting a story

To attempt *The Bacchae* with a cast of seven on a stage as confined as that at the Orange Tree argues a certain daring; but then this theatre has established a tradition of experimenting with limited stage space to find a chamber environment that enhances, rather than diminishes large-scale drama. With this production there is no attempt to transport us to ancient Greece: period costume would look incongruous where every sight-line takes in a large section of the audience. The director, Anthony Cornish, has chosen to make a virtue of necessity and build on the audience's consciousness of itself as an audience. The performers, in modern dress, become mediators between us and the world of Euripides' play, are presenters rather than actors, talking of this our story.

The Bacchae is a play that abounds in narratives - the tale of Dionysus, his birth, the god's account of the destruction of Pentheus's palace; the soldier's of what he saw when he visited Cilix; the news of Pentheus's brutal death. By responding to the power of a story well told, the audience is released in imagination into the dimensions of tragedy; the drama unfolds in our minds. Spectacle is rigorously avoided except for a stylized head and mutilated corpse; movement is of the simplest; the implicit injunction is to listen and imagine. Good story-tellers enter into the emotion of their tales to give them a psychological immediacy so that the transitions from narrative to passages of dialogue here are not startling or crude. Much depends on the translation; and Peter Arnott's is a joy to listen to - sinewy, wittily epigrammatic where necessary, full of arresting phrases which crystallize the complex tensions of the moment.

This approach makes heavy demands on the vocal resources and technique of the cast. Robin Hooper in particular impresses in a trio of scrupulously distinguished roles: as Tiresias his querulous tones gain authority only when speaking of Dionysus's mystery; for the soldier he produces a breathless rush of clearly articulated words, emotionless on the surface as befits his status before a

critical, irate Pentheus, but indicative of a profound awe within that he not long remain suppressed; as the messenger he utters a stilled monotone as of one lost in a waking nightmare.

The weakness in the production is Dionysus and the chorus. William Hayland can encompass a darkly magisterial tone but misses the sinister feline grace of the wit with which Dionysus ensnares Pentheus. He offers no threat to the audience, no sense of a smouldering cruelty quick to flare up in search of ecstatic release. Hayland's sniggering in the face of the havoc Dionysus perpetrates is embarrassingly inadequate. Interestingly, the technique of the production allows us to bypass the limitations of the performer here and to reach out in imagination to experience the degradation of Cadmus, Agave and Pentheus, which is the stark reality of the god's strange power.

Cornish's invention flags rather with the chorus, which he limits to two women. He starts well, staging the first two descriptions of the joys of the Bacchic life around central characters in the drama. But the later mood of exalted satisfaction in revenge defeats them as much as it does Hayland's Dionysus. Two moments stand out as true in tone: the vampire-like descent on the Messenger thirsting for details of Pentheus's mutilation, which he can hardly bring himself to express, finely neutralizes two utterly opposed levels of moral awareness, which is genuinely chilling; and, given the success of that incident, their sudden access of compassion for Cadmus as he faces an eternity of misery powerfully focuses the audience's attention at the close on the tragic devastation of the sufferers rather than on the cool serenity of the god in victory.

A flawed production, perhaps, but a worthwhile and courageous experiment.

Richard Allen Cave

Dr Cave is lecturer in English at Bedford College, London.

Carol Sherrard on the teaching of psychology as part of a multiple subject degree course

Psychology as a cast of mind

Psychology, as we all know, is a science. Sciences are generally thought of as "hard" disciplines: difficult, rigorous, and calling for concentrated application. It is the last of these three meanings I am concerned with here, since it is clearly impossible for students to give concentrated application to a subject if it is only one of up to four they may be studying simultaneously, as in some degree courses now being taught.

Psychology is a favourite choice for such multiple-subject courses, obviously because of its supposed relevance to the broad social interests of the student market: these courses are aimed at single-subject degree courses in psychology devote large amounts of time to the technical aspects of the subject: statistics and experimental design, running experiments, physiological techniques and so on. This would be quite impossible in multiple-subject courses in which even the logical and methodology of psychological inquiry can barely be introduced.

A further and more interesting obstacle to giving these students even the rudiments of psychological method is their reaction to the tenor and approach, even the cast of mind (the reaction is as instant yet as non-specific as to call for such a global term) of empirical psychology itself. As I have already indicated, students on these courses characteristically have broad, theoretical social interests rather than a concern with certainty about hard detail.

Setting aside the question of the quality of the students it must be admitted that students are not alone in their response to the "cast of mind" of empirical psychology. A sociologist, Gill Ursell has recently reported her reactions to the experience of working with a psychologist: "... always a tension-filled and, on some occasions, even painful experience. My own background as a sociologist, although it had involved me in empirical observation, in no way prepared me for the rigour and attention to minute detail of the forms of measurement which are the psychologist's stock in trade."

It is undoubtedly true that psychology as a scientific discipline is not only unsuited to the analysis of social issues, such as trade unionism, but serves to divert attention from the real nature of the issues, even while ostensibly studying them. In this way, politics is reduced to personality interactions, and the obvious difficulties of the poor (such a lack of money) are lost sight of in the pursuit of reasons for school failure.

You see, I think it's too easy to blame that chap's poverty on social structure. It obviously stems back to the sort of relationship he had with his mother - directly affecting his academic achievement later and hence...

Yes, but this is a social psychology lecture! The author is a lecturer in social psychology in the University of Bradford's department of interdisciplinary human studies.

in the minutiae of mother-child interactions.

While it is important to stress that psychology does have a part to play in the analysis of such issues, since poverty does have an impact on behaviour, and probably on mother-child interaction, to reduce the issues to observable behaviour, making no mention of the structural features of society and economy which lead to poverty, is to seriously misrepresent them.

The inadequacy of psychology alone to analyse social issues becomes very apparent in a multi-disciplinary context, and students are quick to see this. While some are less able to articulate it than others, too often contemptuously dismissing the subject along with a blanket condemnation of empiricism and positivism in general, the perceptions of others are strikingly acute.

For example, one student in a final answer gives a straightforward account of empirical results from a study finding sex-stereotyping in television advertisements, but goes on to add a judgment about the naïveté of the authors' approach: "interestingly, the authors do not ask why this should be. Further, the study had started from the question whether sex-stereotyping had begun to diminish, since equal rights legislation had been in force for a decade and the proportion of women in employment had increased."

There are several pieces of naïveté here, the student points out. Firstly, the proportion of women in employment may have increased, but not the proportion of women in powerful positions. Secondly, legislation alone cannot change behaviour or attitudes. Thirdly, the hypothesis presupposes that advertising is a simple mirror of society. Another student answering the same question points out that such content-analysis studies have been "too empirical" - not addressing themselves to the purposes and functions of advertising and confining themselves to superficial operationalizations of stereotypes. It is true that in the apparently more "liberated" women's magazines the narrow stereotypes such as housewife and mother figures appear less often, but sexism is still subtly apparent in the advertisements featuring sports-women and executives, because they are portrayed as being primarily concerned with their appearance.

All very well, the reader may ask, to criticize psychology; but can they do it? A fair question, but one that can be addressed to psychology single-subject teaching as well. Do these students really gain a mastery of the subject? This is doubtful, since post-graduate training is required for almost any psychological profession. Psychology, like any academic discipline, forces students to question the grounding of common sense and intuition. Too often, though, we merely demolish common sense and offer nothing substantial in its place, resulting in a timidity of judgment, an avoidance of concern with social questions on such pretexts as "we don't know the facts" or "it's impossible to be certain".

What is rarely made clear to psychology students is the extent to which experimental design is a systematic and sustained application of common sense. Often this topic is laboured and mystified in single-subject teaching, with the effect that many students' confidence in making use of it is undermined. In a multi-disciplinary course, however, pointing out the need for control groups, balancing, randomization and so on are readily appreciated if they are not laboured, and if the students know that the points are related to substantive questions.

True, students on such a course are not psychologists, but they have not had their capacity for judgment paralysed. "The authors do not ask why," wrote the student, but she, at least, did.

The author is a lecturer in social psychology in the University of Bradford's department of interdisciplinary human studies.

The artist and the



The artist, not less than the scientist or engineer is a key to economic success, argues John Kenneth Galbraith (left)

Some 15 years ago I initiated at Harvard a series of seminars on the economics of the arts. It was, I believe, regarded by both artists and my fellow-economists as a deeply questionable experiment - by my artist friends as a rather philistine exercise, by my fellow economists as slightly eccentric. At least that was my assumption and, if so, both artists and economists were reacting in accordance with the accepted traditions of their pursuit or profession.

It has anciently been the attitude of the artist that he stands apart from and well above economic concerns. His is a world that is manifestly a world unto itself. As an indication of merit, economic reward is incidental, unimportant and perhaps even perverse. People have always spoken appreciatively of the starving artist, almost never so of the affluent one. In modern times artists do get very rich, notably in Hollywood and New York but also in Paris. The relevant forms of artistic endeavour - cinema, television and popular music recordings - are considered to be on the fringe of artistic achievement. So much money being involved, they are not "true art".

The attitude of professional economists towards the arts is less unequivocal, which is to say it is almost completely lacking. One of the problems - and in some way one of the pleasures - of my seminar was the nearly total absence of professionally qualified reading matter. Economists get their backs into the steel, automobile, chemical and textile businesses; we are currently having an intense discussion in the United States of the very sad state of what we have come to call our smokestack industries.

And no economist is quite respectable who does not have a thoughtful view of the prospects of the new high technology industries, affectionately now nicknamed the "high-tech sector." I know of no one who is working on the economic prospects for painting and portraiture, or for that matter, for theatre or concert music.

Some weeks ago *The New York Times* reported that Broadway was suffering severely from the recession in the worst season in many years. No one would have thought that to be an appropriate story for the business pages - or for an economic reporter. The greatest economic figure of this century, Lord Keynes, was deeply interested in the arts, but he was not especially concerned to build bridges between economics and the arts. As Robert Hutchison quotes him (in *The Politics of the Arts Council*), his purpose was that "the artist and the public [would] each be led to sustain and live on the other in that union which has occasionally existed in the great ages of communal civilized life." There was no avowed economic interaction here.

There are, though, numerous ways in which the arts interlock with economics, including the oldest of all, notably the means by which the artist is supported. There are, however, three relationships that are of increasing, even urgent modern concern.

There is, first, the ever more important role of objects of art - painting, sculpture and other artistic articles - in the capital stock of the modern community with the problems of capital management there implied.

There is, second, the expanding role of all art in the standard of living and thus as a factor in the economy at large.

And third and finally, there is the extremely important and much neglected relationship between art and general industrial achievement. The artist, not less than the scientist or the engineer, is a modern key to

economic success. Few things could more distress the artist than the discovery that he or she is an extraneous factor in the Gross National Product. But there is worse news to come; the artist has an increasingly important relationship to economic success in a mature economy and to the success and solvency of the participant firms.

In recent times, notably in the last two decades, art has become a major object of investment. Competing with those who advise on investment in shares, bonds and real estate and rivaling them in self-confidence and frequent incompetence are those who advise on investment in objects of art. Once the man of wealth went to the counting house or his bank safety deposit box to view and be assured of the results of his financial acumen, now he looks at his walls.

There are no great and solemn problems in this development as regards either the artist or the investor. Much of this investment goes to building up the capital values in established works of art. The rewards accrue not to artists but often fortuitously to those who inherited or otherwise possessed.

But some do accrue to the established painter or sculptor; and some high risk capital goes to the man or woman who still has a reputation to make or, however recklessly, is trying something new. None of this is damaging; it is my strong feeling that the adverse effect of money on artists has been greatly exaggerated; the case of Raphael, Titian, Michelangelo and, ultimately, Leonardo and of others from Rubens down to Picasso shows that great art can overcome the perils of great personal wealth.

Nor is there need to reserve much concern for the investors. Many of them will suffer loss; there is little doubt that in consequence of the exuberant enthusiasm of Mrs Thatcher and Mr Reagan for the economics of Professor Friedman, quite a few recently have. It is a well-established feature of the free enterprise system that fools and some other people will sooner or later be separated from their money.

There is a serious problem here for those who safeguard artistic treasures in our museums. They are the custodians of resources of great pecuniary value; increasingly their wealth will be the object of avaricious attention. It must be closely watched; there must be a powerful presumption against its dissipation for any purpose whatever. The press-facts - in the capital stock of the modern community with the problems of capital management there implied.

There is, second, the expanding role of all art in the standard of living and thus as a factor in the economy at large.

And third and finally, there is the extremely important and much neglected relationship between art and general industrial achievement. The artist, not less than the scientist or the engineer, is a modern key to

economist: why the twain must meet

mitment to the arts. Let us not, in any case, believe for a moment that there is some supervening financial wisdom to which those who guard our artistic treasures should be subject.

The second nexus between art and economics concerns the effects on the arts of the increase in income, both the income of individuals and in the aggregate of the national income - and on economic development in general. There can be no doubt that, as individuals and nations increase in wealth, art in its various manifestations becomes an increasingly important part of the living standard. Figures are not available; alas, there is no agreed definition as to what is art. But there are things we can count. Affluent princes, merchants and churchly congregations turned throughout history to art; it was the affluent who purchased and conserved our present treasure. There is no similar debt to the poor. Bread, clothing, shelter and material artifacts have the first claim on income: when these are obtained, people turn to beauty; the visual and performing arts become increasingly a part of daily life.

The association between income and art has long been a source of serious distress to many artists. Can anything so identified with the finer side of nature be soiled by a correlative association with mere cash? And no slight effort has gone into disproving the association. Deep in the inner soul and psyche of the poor there is - or must be - an instinctive artistic expression. It has only to be discovered. There is folk art, proletarian art, the art by implication of the masses. Surely these are superior to bourgeois art, art that has been blighted by exposure to money. All will be aware of the effort at disassociation; it is not convincing.

The adverse effect of money on artists has been greatly exaggerated

It is, indeed, when other wants are satisfied that people and communities turn generally to the arts; we must reconcile ourselves to this unfortunate fact. In consequence, the arts become a part of the affluent standard of living. When life is meagre, so are they. And there are rewards for the artist from this.

The artist has long been a socially acceptable figure or something more than standard; a painter or musician adds esteem to a social occasion that even a successful banker or manufacturer may not. But for all sombre economic and political matters the artist is peripheral and irrelevant. None can imagine that the painter or musician has the same right to be heard on economic - or political - questions as the person solidly associated with the production of consumer's durable goods.

In the modern society of relatively high well-being - a well-being that survives even the attentions of modern governments - the economic contribution of the artist is not less than that of the manufacturer or the banker. Accordingly, he or she has an equal right to speak and be heard on economic, social and political concerns. And more than self-expression is involved.

We have a wide variety of public and social intervention on behalf of, as it is called, established industry. Education, research, tax incentives, provision of such public facilities as transportation are all seen as legitimate forms of public and social support to industry. There must be no doubt: in the modern affluent community the economic justification for education in, and encouragement of, the arts is not less than that for any other aspect of economic life; it serves equally the standard of living; it has equal relevance to the growth in the Gross National Product. This is not a thought to which artists will readily respond; again there is the

vision of a higher, less exoteric mission.

It is the not wholly harmless vanity of the scientist and the engineer that they are on the cutting edge of modern industrial achievement. It is the scientist and the engineer who open the way to new lines of economic activity; it is they who achieve the improvements that make possible the progress and survival of established industry. As in Britain and the United States we look with despair on the state of our older industry, so we look with hope on that which incorporates the new and higher technology. That is where our salvation lies.

I do not wish to minimize the role of technological achievement. I wish that more of it were directed to raising the excellence of our civilian products, less to the weaponry that promises the destruction of those products, our artistic heritage and all of us as well. But we must cease to suppose that science and resulting technological achievement are the only edge of industrial advance. Beyond science and engineering is the artist; willingly or unwillingly, he or she is vital for industrial progress in the modern industrial world.

The basic point is a simple one, and it applies to the widest range of industrial products: after things work well, people want them to look well. After utility comes design. And design depends not alone on the availability of artists; it invokes depth and quality of the whole artistic tradition. It is on this that industrial success comes to depend.

Proof is wonderfully evident once we learn to look for it. One of the miracles of modern industrial achievement has been Italy. Since the war Italy has gone from one public disaster to another with one of the highest rates of economic growth of any country in the western industrial world. No one has cited in explanation the superiority of Italian engineering or science. Or of industrial management. Or the precision of Italian government policy and administration. Or the discipline and cooperativeness of the Italian unions and labour force.

Italy has been an economic success over the last 35 years because its products look better - because Italian design is better. And Italian design, in turn, reflects the superb commitment of Italy to artistic excellence extending over the centuries and continuing down to the present day. We pay a greater tribute to Italy than sometimes we know. No one is really qualified to become the head of an American automobile company these days unless he has an Italian name. Italian or Spanish names are compulsory for all car models. I venture to think that the same brand rules operate here in Britain. No British government would have dreamed of financing Mr DeLorsan had his name been Jones or Smith.

The Italian case is only the most vivid. The industries of Paris, New York and London - textile and furniture design, building construction, dress manufacture, advertising, film-making and theatre - all survive on these otherwise economically inhospitable surroundings because of their juxtaposition to the arts. And there is ample indication that they survive better in consequence - are less vulnerable both to the competition of the new lands and the devastation of modern economic policy - than the

solid industrial establishments of traditional economic achievement, the steel mills, automobile factories and coal mines. It has been little noticed that in the older industrial countries those industries and cities that best survive are those that co-exist with a strong artistic tradition.

Nor is this all. The artistic tradition preserves and cultivates an important form of economic enterprise, the small nonbureaucratic firm. The artist, it has long been known, fits badly into organization. He is the obverse of the organization man. (In my university a professor who is resistant to the academic discipline and mould is described as "a little too much of an artist.") In consequence, those industries that have an artistic



Abstract artist Mark Rothko in his New York apartment with two of his paintings behind him. Rothko committed suicide in 1970. Immediately, his estate became a legal battlefield as his "trustees" engineered a fortune for themselves by illegally manipulating the price and sale of his paintings. Art had become big business - and, as always, crime was hot on its heels.

orientation tend to be small: a large part of the Italian success in these last 35 years has been that of small firms.

An important weakness of the modern industrial economy, as increasing numbers are beginning to notice, is traceable to the unsolved problem of great organization - of the immobility and frequent inefficiency of the modern great private and public bureaucracy and its tendency to measure intelligence by whatever is being done, excellence by what most resembles what is already there. Association with the arts preserves a smaller, more flexible form of enterprise. My friend and sometime colleague, the late Fritz Schumacher, made memorable the phrase, "Small is Beautiful." It could, equally, be turned around: "Beautiful is Small."

There is no reason why the artist cannot have a responsible view of his relationship to modern economic life and so act as to express that responsibility. This is true of public support for the arts. It applies strongly to public education in the arts. The artist by his economic contribution has earned the right to speak on behalf of his own rewarding interest. He must now recognize the need to do so. His position will always be inferior for so long as he assumes that other and more practical men must represent him to the public and the state.

The association of art and economics is not a popular one, least of all with professional economists as their commitment is to bills, bolts and tonnage. There is not the world of Rembrandt and Andy Warhol. And for artists the nexus is even worse. The artist is in the service of an even higher master than Adam Smith. But in this world one cannot wholly avoid guilt by association; the association between art and economics is for all who would see to see.

The author is emeritus professor of economics at Harvard University. This article is based on his V. E. Williams Memorial Lecture given before the Arts Council of Great Britain this January.

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David Leigh considers the art and science of conservation

The raising of Henry VIII's flagship the *Mary Rose* in October drew public attention to the work of conservators whose task it will be to stabilize and restore the wreck over the next few years. Most people now know that although the *Solent* silt preserved the buried part of the hull in remarkable condition, the wood itself is completely waterlogged and its outer surface is heavily degraded. If they were allowed just to dry out the timbers would distort and their surface craze, so some method of controlling the drying and replacing the water will be necessary. The technique most likely to be chosen is the one that has already been used to treat the Swedish seventeenth-century warship, *Vasa*: continuous spraying with a solution of a soluble wax which will solidify within the weakened structure and give it strength.

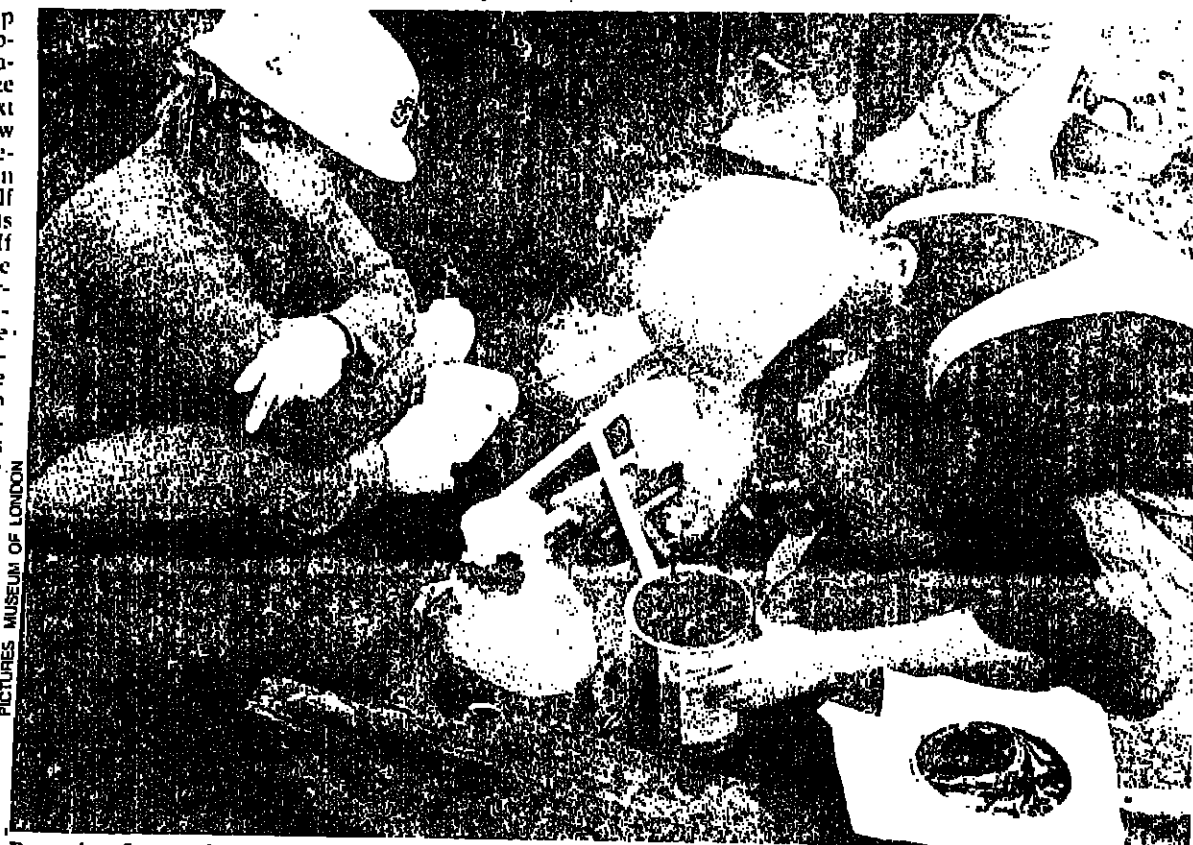
Conservation of the *Mary Rose*, as well as of the thousands of artefacts already recovered from it, represents just one aspect of a larger discipline which has burgeoned only in the last few decades: the conservation of antiquities and works of art. There are now about 700 conservators working in this country. They are to be found in museums and art galleries, in the laboratories of archaeological units and in a few private restoration workshops. Their task is to care for those material manifestations of our past and of our culture which we consider worthy of retention.

Starting in the nineteenth century, with realization of the damage that could be done to water-colours by displaying them in bright light, this science progressed in stages. In 1922 the British Museum set up a research laboratory to deal with First World War storage damage to its treasures. In 1948 the National Gallery's restoration staff was enhanced by the appointment of a scientist. In 1950 the then Ministry of Works set up an ancient monuments laboratory to deal with material from its excavations. In 1960 the Victoria & Albert Museum formalized its restoration workshops into a department of conservation.

An earlier and somewhat false distinction between restorers (who care for paintings) and conservators (who care for the rest) is giving way to the concept of a discipline with specialists in almost every branch: in antiquity care: oil paintings, paper (including works of art and writing), textiles and costume, ethnographic materials, applied art objects, industrial remains and archaeological artefacts. The scope of the subject goes beyond these, however, with growing expertise in the preparation of natural history and geological specimens, and the care of musical, scientific and medical instruments. The subject even embraces the care of buildings.

The advance of conservation can be seen as the outcome of the increasing value being placed on our material heritage and increased professionalism to be found in British museums and galleries. This country has tended to take the lead in this field. We have a tradition of training British and overseas conservators, many of whom occupy some of the most senior posts abroad; we are in the forefront of research in several fields of conservation; the main international body (International Institute for Conservation) is based in London; two of the four directors, and many of the staff of the Rome Centre (a UNESCO body) have been British. A growing sense of nationhood among developing countries who set up their own museum services will lead to a continuing demand for expertise in this field.

Perhaps one of the strongest attractions of conservation to its practitioners is the manner in which it embraces the two cultures. On the one hand every conservator has to be familiar with the art-history of the period and culture which created the objects in his or her charge. A painting restorer, for instance, will have a training in art history almost as intense as any art student. An archaeological conservator will have undergone a general archaeological training and may well have specialized in one or more periods. He or she will certainly have first-hand experience of excavation in the field. Technical knowledge and manual



Preparing for on-site moulding of timber. On very large timbers carpenters' marks can be moulded and cast to overcome the difficulties of treating and storing them.

Finders, keepers

skill count for little without a sympathy for the intentions of the original craftsman, and an aesthetic sensibility is usually a prerequisite for this work.

On the other hand scientific knowledge is becoming ever more important to conservators. A first stage in conserving antiquities is to understand the technologies which man used first to extract materials and to convert them into usable products, and then to manufacture them into artefacts of utility, art or ceremony. The original craftsman learnt their skills by trial and error, and by knowledge passed down. Our retrospective understanding of the processes they used has in large part to be deduced in scientific terms from a

study of the artefacts themselves and the occasional finds of workshop debris or industrial waste. To understand smelting and metal-casting, for instance, calls for a knowledge of ore chemistry, of furnace processes and of crucible and mould materials. To say how the raw metal was worked and decorated to produce a final object requires the services of metallurgists and examination of the metal's microstructure.

Before any corrective measures can be taken conservators have to know why and how an object has degraded. Corrosion, biodeterioration, the action of light, are just a few of the likely degradative processes, many of which have only been properly studied recently. In some aspects conservators find themselves pursuing quite different lines of research from those that interest industrial scientists. Corrosion scientists, for instance, are concerned with processes lasting rarely more than a hundred years and in alloys made to modern standards of corrosion resistance. By contrast, conservators are interested in slow processes, taking perhaps thousands of years in some times very aggressive burial conditions, and in a range of materials produced by unsophisticated early technologies. At University College, Cardiff, where there is a project - supported by the Science and Engineering Research Council - to investigate the corrosion of iron antiquities in the ground, the extensive modern research into iron rusting is found to be largely irrelevant to the condition of archaeological iron. It is

interesting that the Atomic Research Establishment recently sought evidence from archaeological science on how materials could withstand burial over long periods (presumably with radioactive storage vessels in mind). Another impact of science on antiquity conservation comes with the technology of modern materials used to stabilize and restore artefacts. The polyethylene glycol likely to be used on the *Mary Rose* is but one polymer of the thousands available to conservators for a great variety of tasks: resins with the right visual and mechanical properties for varnishing paintings; adhesives that can stick degraded wood, or remain flexible for leather repairs, or have the perfect optical qualities for glass mends.

finds into information about our past. (We are "digging up people, not things" to quote Wheeler.) Let us take as example the contents of a moderately rich Anglo-Saxon grave and explore just a fraction of the evidence susceptible to this approach. The bones will need to be carefully lifted from the ground and they may well need to be consolidated with a resin. Only then can they be sent to a bone specialist for analysis. A fragmentary glass vessel will need repair and probably gap filling. The glass itself could be analysed by X-ray fluorescence for evidence about the colouring agents and raw materials used. So also could any glass beads found round the skeleton's neck. A pottery vessel

will need cleaning, its contents carefully investigated, its fabric consolidating and the pot itself restored. An iron knife will need X-radiography to reveal its original form beneath the rust, careful cleaning of corrosion layers, and investigation under the microscope to identify any mineralized remains of a former bone or wood handle. The knife might be selected for a metallographic examination, possibly requiring a cut section to be taken, and revealing the sequence of the processes of hardening and sharpening its edge.

The brooches, of gilded silver or bronze, may well have remains of the original textiles to which they had been attached, and from these the nature of the cloth can be discovered; the scanning electron microscope shows particular promise for characterizing these fibres. The brooches themselves will need careful cleaning, either mechanically or with chemicals, and will then be susceptible to both chemical and metallographic study to establish, among many features, their production sequence and the method of application of their gilded layers. A study of the wear patterns may establish how the brooches were used on the clothing. Any inlaid stones or enamel might also be examined mineralogically or chemically. And so on, for all the other items likely to be present in a well-furnished grave.

Obviously any one conservator cannot be expected to carry out all the scientific investigations personally.

ly, but he or she has to be acquainted with them, and able to ask the right questions of the relevant scientists.

Conservation does not stop in the laboratory. Conservators and curators increasingly recognize that antiquities continue to react with their environment even in the comparative security of a museum showcase or store. The conditions which may be acceptable to museum visitors are not always those that are best for exhibits. Instead of the fluctuating and often extreme conditions of humidity of many museums, the abundance of polluting gases and dust from industrial processes and internal combustion engines, and instead of the high levels of lighting produced by spotlights and windows, antiquities and other works of art would prefer a totally enclosed, controlled and dark enclosure. The American Declaration of Independence is permanently sealed in an atmosphere of nitrogen. Such extremes, while they may ensure eternal life to the exhibits, are of course not normally acceptable, nor affordable. A compromise has to be found between the needs of exhibits and those of visitors. This is nowhere more true than in the case of lighting control. Organic materials - costumes, watercolours, tapestries, etc. - are extremely sensitive to light. We are now able to predict the degree of damage due to light, and to prescribe measures for control. These include such obvious and simple expedients as blinds over windows, or cutting out daylight altogether; but also the use of special filters over light sources to remove ultra-violet light, the most harmful and yet invisible component of the spectrum; and the use of light sensors to control automatically rooftop blinds and lighting circuits.

Each type of material has its own requirement for humidity, which can make display of unlike materials in one showcase very difficult. Metals do best in the dry, to reduce corrosion, while organic materials require a damp atmosphere to reduce the risk of desiccation and embrittlement, and yet not so damp that mould growth is encouraged. Hence the thermohygrographs which are becoming a feature of many museums' equipment; hence humidifiers and dehumidifiers to counteract the effects of winter heating or damp summers; hence also the occasional use of air conditioning. Although some of the larger provincial museums and part of some of the national museums are equipped with full air conditioning, few other museums or galleries can afford to install or maintain such equipment. The tendency now is to local control of showcases and of smaller storage areas, the former by means of humidity absorbing materials - such as silica gel - and the latter by the kind of humidifying equipment referred to.

In recent years conservation has developed into a complex and fascinating discipline, requiring an unusual blend of scientific and artistic knowledge with fine manual dexterity. It has built upon a wide range of scientific research, and now generates its own research targets. The SERC supports work in this field, via its science-based archaeology committee, and a few institutions employ research staff devoted to solving conservation problems.

The opportunities for training in this field are numerous and available at several levels: non-degree, as for instance at the Camberwell School of Arts; degree, as at University College, Cardiff, and London University; and postgraduate, as at Durham University and the Courtauld Institute. The Crafts Council also supports apprentice-type training. A full list of training facilities is provided by the UK Institute for Conservation, at the Tate Gallery. The requirements for entry vary, but the qualities discussed above obviously help; an artistic or historical bent combined with an aptitude for the sciences, especially chemistry. Needless to say, an ability to use one's hands and an enthusiasm for the work of man would not come amiss.

The author is lecturer in conservation at University College, Cardiff.

BOOKS

Flashes of everyday life

by J. F. C. Harrison

Destiny Obscure: autobiographies of childhood, education and family from the 1820s to the 1920s

by John Burnett

Allen Lane, £9.50

ISBN 0 7139 1214 6

Child Abuse and Moral Reform in England 1870-1908

by George K. Behlmer

Stanford University Press, \$30.00

ISBN 0 8047 1127 5

The Climbing Boys: a study of sweeps' apprentices, 1773-1875

by K. H. Strange

Allison and Busby, £7.95

ISBN 0 85031 431 3

Among recent developments in social history none is more marked than the steady accumulation of material from which it may soon be possible to construct a new type of history of the common people. Such a history will not be written from the perspective of economic historians, labour historians or political leftists; nor will it rely on the evidence of contemporary middle-class reformers and observers, no matter how sympathetic. Instead, it will be based on the experiences and perceptions of the people themselves; how they actually felt about what they were doing, and how the world appeared to them.

Historians have conventionally assumed that a history of ordinary people is either of no account (since they were not the decision-makers) or is not possible (since the sources do not exist). The common people are, almost by definition, those who do not exercise power. Why bother about people who do not matter? So, the common people were excluded from history: they were, for much of the time, illiterate and therefore assumed to be inarticulate. But this "inarticulateness" may be the result of more than a shortage of documentary records. It may stem from the historians' unfamiliarity with the culture of working people, and even more from a refusal to take their ideas and actions seriously. Many of the historian's stereotypes of the common people come from third parties, and are not the perceptions of the people themselves. In other words, the evidence is there but the historian cannot see it.

Admittedly there is a problem of sources. The documentary records upon which historians rely so heavily do not at present exist in the same form and quantity for the common people as for their social superiors. The historian is of course bound by his evidence, and if it is not there he can make no headway. But this is not the whole story. First, the amount and variety of material, especially for the last two hundred years, is much greater than was once supposed: for example, many hitherto unknown autobiographies of working men and women have come to light in the past fifteen years when scholars have deliberately gone out to look for them. No truth is greater for the historian than that he who seeketh, findeth. Second, new information about the common people can sometimes be gained from re-evaluating aspects of working-class life. Childhood and family relationships have become a major preoccupation of social historians in recent years, but the views of ordinary people about these matters have remained largely hidden.

Burnett points out that the writers deal with a fairly restricted set of themes, which they presumably felt were of most significance: their very earliest memories, their first realization of identity, religious beliefs, the physical contents of the home, childhood duties, the first day of full-time work, and the ending of childhood. For the nineteenth and twentieth centuries there is already a sizeable and growing body of material. The collection and analysis of nineteenth-century working-class autobiographies by Dr David Vincent and Professor John Burnett has already shown what can be expected. To this



An engraving, "February - Cutting Wether - Squally!", by George Cruikshank.

may be added the valuable contributions from community publishing ventures in Hackney, Brighton, Manchester, Bristol, Tyneside and elsewhere, which have produced reminiscences, autobiographies and literary productions from working people. The history workshop movement, inspired by the journal, *History Workshop*, has helped local people to rescue their own history from oblivion.

Destiny Obscure is a companion volume to John Burnett's *Useful Toil* (1974). It is a brilliant example of the kind of work needed to document the events and experiences which illuminate the lives of ordinary men and women and their perceptions of themselves and their world. We cannot be sure what the priorities in their lives were; but it would seem reasonable to assume that family relationships ranked high. Reminiscences of childhood tell us much about the family and the institutions of education - not as they were supposed to be, but as they actually appeared from below.

The work is based on no less than 800 autobiographies. A few of them already exist in published or privately printed form; but the majority are unpublished and came in response to appeals in the press and in a BBC programme. From this rich collection some 28 short extracts are grouped together under three heads: childhood, education, home and family. Many more references to the autobiographies are quoted in the excellent introductions to each part, which constitute an original and perceptive re-evaluation of aspects of working-class life. Childhood and family relationships have become a major preoccupation of social historians in recent years, but the views of ordinary people about these matters have remained largely hidden.

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loving and caring, others as remote or unaffectionate. Nor was this as directly related to social class as might be supposed. While economic resources obviously determined what could be spent on children, and there was a minimum below which the struggle for existence blighted the lives of all in the family, children's happiness at home was not directly determined by the poverty or otherwise of their surroundings. "The happiest memories of child life," observes Burnett, "generally came from large working-class families, which, by modern standards, had no luxuries and few comforts, but which stood somewhat above the level of the very poor."

Several themes in the autobiographies recur frequently, almost regularly. Corporal punishment both in the home and in the school, for instance, appears to have been very widely administered. Mention is made of the cane always being laid on the table at meal times, or hanging prominently from a hook on the wall. Faith Osgerby's mother was an energetic spanker of her seven children. Faith, who was born in 1890, describes how she wore "open drawers", and ruefully observes that "little girls' bottoms were so very accessible, and mine was smacked so very often." In school the cane seems to have been used indiscriminately all the time, and was in fact a symbol of office. "He was a firm believer in the use of the cane" is the commonest observation made about a teacher or headmaster.

It is hardly surprising that dislike of school, fear of teachers, and resentment at humiliations imposed are frequently expressed by autobiographers. These sentiments are directed at public elementary education, whose purpose was to inculcate discipline, order and obedience in the classroom, with the hope that ultimately these virtues would be transmitted to working-class life generally. But two educational institutions were remembered differently. Many autobiographers mention attendance at a dame's school, where the rudiments of literacy were learned, and these days are recalled with gratitude, affection, and (with the reflection of hindsight) recognition of the simple skill of their old teacher. Similarly the Sunday school is remembered with very little criticism. Typical comment was that of the anonymous "Cornish Wair", for whom Sunday school was "the brightest thing of my life". It is significant that the dame's school was the

one educational institution over which working-class parents had complete control; and the Sunday school, although established by the middle classes, came to be absorbed into working-class culture and was, as Burnett says, "ultimately, largely taken over by the working classes themselves as an institution well suited to their intellectual and spiritual needs."

Not only Sunday schools, but religion generally figures prominently in these autobiographies. Far from being the repressive, frightening influence that some historians have portrayed, religion as remembered in childhood appears as a happy, even joyous, element in the week's activities. Sunday, which often meant a concentrated dose of church or chapel attendance occupying virtually the whole day, was looked forward to as something special. In respect-able working and lower middle-class homes the Sunday dinner, served on a clean table cloth, was the main meal of the week. Sunday was a time of family togetherness, visits to relatives, and everyone in their best clothes for communal worship. A few children experienced a gloomy, puritanical Sunday, and for them the memory was less pleasant. Averil Thomas recalled the poem she recited in the Wesleyan chapel around 1898:

I must not play on Sunday
Because it is a sin.
Tomorrow will be Monday
And then I may begin.

There are many other vivid flashes of everyday life in these writings. For the poor the constant feeling of hunger as a child is never forgotten, nor the pitiful subterfuges to make monotonous food a little more appetizing, such as asking for half a loaf of bread cut with a hammy knife to give it flavour, or being given the top of an egg (the rest going to father) to eat with the bread. Monday, the universal wash day, left an indelible impression on young minds. It was for ever afterwards associated with the labour of boiling the clothes in the copper, hanging them out with a stick, mangle them, and finally disposing of oceans of suds. "The house was filled with steam, and there was cold meat and 'bubble and squeak' for dinner. A more terrifying memory was the backyard killing of pigs. The creature had been treated almost as a member of the family throughout the year; and the impact

of the preparations for its slaughter, the arrival of the butcher with his knife, and the dying screams and pouring blood of the animal are told in many autobiographies. Primitive sanitary conditions are often commented on, and the disgusting details of the privy are remembered with of the privacy are remembered with a deadly accuracy. Daily life through a child's eyes is seldom obscured by the conventions and self-deceptions which surround it later.

A very different angle on childhood is presented in George K. Behlmer's valuable monograph, *Child Abuse and Moral Reform in England, 1870-1908*. Based on a Stanford University PhD dissertation, this study centres on the National Society for the Prevention of Cruelty to Children which was founded in 1889 to give teeth to the "Children's Charter", as the Act for the Prevention of Cruelty to Children (1889) was publicly proclaimed. It is essentially a contribution to the history of Victorian middle-class philanthropic social reform, parallel to, and indeed drawing inspiration from, the RSPCA which had been started in 1824. Here we have a view of the working class as a "problem". The NSPCC, argues Behlmer, was "a classic case of philanthropy as a tool of social control". As a result of its efforts the NSPCC's blue-uniformed inspector ("the cruelty man"), like the school attendance officer ("the punishment man"), became a familiar figure in some working-class neighbourhoods. Despite a natural dislike of snoopers, and a suspicion of middle-class interference, respectable working people came to accept the services of the society in protecting children against flagrant abuse. Robert Roberts, in his *The Classic Slum*, recalls how his mother, who kept a corner shop in Salford in the early 1900s, would quietly inform the cruelty man when she heard of a heinous case. Behlmer's study is of course mainly concerned with the politics and organization of Victorian voluntary effort and issues such as the relation between voluntary bodies and the state, and the problem of reconciling parental power and the sanctity of the family with moral reform from outside. Nevertheless in the interstices there are also illuminating glimpses of the working-class world of the late nineteenth century.

One of the best-known instances of cruelty to children in an earlier period is the plight of the climbing boys (sweeps' apprentices). Behlmer argues that there was a major discontinuity between the late-Victorian anti-cruelty campaign and such earlier reform efforts, though the Chinese Sweeping Regulations were not finally passed until 1875. For this and other details of the hundred-years campaign to regulate and ultimately abolish the practice of using boys to sweep chimneys we may turn to K. H. Strange's book, *Climbing Boys*. From Jonas Hanway's publications in 1773 and 1785 to Lord Shaftesbury's agitation in the 1830s and 1840s, with the usual references to Blake, Dickens and Charles Kingsley, the well-known story is repeated. Kathleen Strange explains that she was moved to write the book after seeing in the Isle of Wight a memorial to Valentine Gray, a climbing boy who died in 1822 at the age of ten. Her journey of intellectual discovery has obviously been great fun for her. But, alas, the book is quite innocent of scholarly methods and usages, and adds little to standard accounts such as the *Hanmonds*. Sympathy and a kind heart are excellent for campaigning for the Save the Children Fund (to which the royalties from this book will be donated); but the problems of historical interpretation necessitate additional qualifications.

Professor Harrison is working on a *History of the Common People, 1660 to the present*. His publications include *"The Second Coming: popular millenarianism, 1780-1830" (1979)*, *"Early Victorian Britain, 1832-51" (1977, 1981)*.

BOOKS

Women in college

The Undergraduate Woman: Issues in educational equity edited by Pamela J. Perun Lexington Books, £23.50 ISBN 0 669 04304 4

Equality is not enough. In American higher education the point has been reached where the rate of female student enrolment equals - indeed tends to surpass - that of male students, but it is still necessary to ensure that equity has been achieved.

This is especially important since the American system of higher education (not simply of universities) offers such a bewildering array of choices - private and public institutions, four and two-year colleges, coeducation or single-sex institutions, financing by grants, loans or work-study. In such conditions do women opt for the cheaper institutions and shorter courses? Do they prefer to stay near home and take less vocationally valuable courses? These and related questions have been extensively studied in the American context and this compendium of conference papers reports results comprehensively.

The general impression is that the situation of undergraduate women in America is better than might have been expected. Tests used in selection for college entrance now show relatively few items with a bias against one or other sex. Though women tend to opt more for two-year colleges and are more likely than men to be supported by parental loans during their college years, there is evidence of less sex stereotyping in choice of subjects and perceptible progress towards more balanced representation at higher degrees levels. Not unexpectedly, it is reported that parents are influential in determining the woman's choice of college; but one would have liked here more information about the high school's role in preparation and counselling.

Reassuring too is the evidence that women belonging to ethnic minority groups have begun to achieve college status and to form ambitions to take postgraduate qualifications. Even so, the research reported on Chicana and native-American women shows that there is still some distance to be covered before they arrive at equality again with notes with interest the influence of the mother's education. But the complexity of the problem of women's progress in higher education is shown in the ambivalence of results reported from a study of black men and women students in mainly black colleges and mainly white colleges. The mainly black environment may encourage rather better scholastic adjustment; but for black women students this environment may exert pressure towards conforming to the traditional female role of subservience and lower aspirations. How are values to be inculcated here?

Perhaps the last bastion of inequality in the profession of teaching in higher education. Again, it is reassuring that despite the relative scarcity of female models, American undergraduate women have made progress. But one report shows that in some departments female teachers remain exceptions - and are then all the more "visible" in critical scrutiny. While students do not show sex prejudice in rating their teachers' ratings of women teachers' willingness to give professional help tend to be rated as equal to men's. Women are expected to invest more time in information and do so. Such research may illuminate controversies in Britain as to whether women in university posts are more interested than men in teaching objectively, teaching guides, or equal women themselves. Professors equal, commitment to research - yet are paid to give more time to teaching. But if teaching is devalued and demand in-

volve women in unscheduled tutorial work, discrepancies of impressions and researches may be explained. But what are the eventual effects of higher education? American work has tried to monitor changes in students' thinking as they move through higher education. For male students in Harvard Perry had mapped progress from an initial belief in absolute right and wrong to an evaluation of principles within a frame of reference and an eventual arrival at commitment within a system. Clinchy and Zimmerman report a similar evolution in Wellesley College women from simple dualism to the sophisticated final stage which they prefer to call (not very helpfully) "agency" - that is, acting responsibly, with contextual judgment, synthesizing characteristics formerly stereotyped as masculine and feminine. Thus the best products of high-

er education, whether male or female, arrive at the same philosophical position and commitment. As the authors comment, women graduates in particular would benefit greatly if all could reach this stage of making decisions with confidence in the adequacy of their judgment and actions. But it would seem we need more research before we accept this definition of the ideal position - and expect higher education to have such effects on graduates of all disciplines. Thus, as always, one returns to demand more research. In fact this book offers an excellent scientific survey of research in the areas specified. Sometimes the details and statistical data may seem excessive but results and conclusions are discussed succinctly and clearly. The reader gains much insight into the conditions of life of the woman undergraduate. Yet even if the reports on

present developments promise progress towards the desired equity the historical sections show how the situation of women undergraduates has changed in different phases of the nineteenth and twentieth centuries: a study of Wellesley alumnae leads to the conclusion that however excellent their record in public service, in marriage and child-rearing, individual women are not fully in control of the situation. There are clearly perceptible social pressures which shape the life pattern of individuals. The book does well to stimulate further thought about these pressures and the ideal of achieving acceptable equality.

Margaret B. Sutherland

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On the move

Learning over the Air: 60 years of partnership in adult learning by John Robinson BBC, £12.95 ISBN 0 563 20092 8

The greatest virtue of this book is that from the beginning it ranges over both formally educational broadcasting and the vast range of generally educational programmes. It therefore moves from a series of foreign language classes to lunatic and verbally inventive comedy - one of the strongest continuing strains in radio and television - to today's rash of consumer programmes within the general schedules. This approach also allows the author to set changes in formal educational provision against overall movements within broadcasting over the last sixty years.

On the intricacies of educational broadcasting itself Mr Robinson is thorough, wide-ranging and historically authoritative. He will not soon be superseded as the quarry for all aspects of the subject from the earliest days to *On The Move* and the great kaleidoscope of present-day provision. Almost always he writes clearly and unaffectedly, though very occasionally the familiar official jargon takes over. All in all, though - and this is the more admirable in what is after all an institutional history - neither the perspectives nor the attitudes brought to the study of them are narrow. The readership is bound to be narrow, though, and would be even if the price were much less. A shorter and more popular version would be valuable, and could be carved out of this one.

Within educational provision the focus is chiefly on adult education and further education, rather than on schools broadcasting. There seem to be two reasons for this. First, that schools broadcasting, as compared with adult and further education is something of a reserve, a protected area. AE and FE, and they shouldn't and usually don't grumble at their fate - have to push all the time at the boundaries occupied and defined by general programming. Second, FE was for a long time John Robinson's own patch; so he knows the struggles intimately.

With all the book's virtues, I wish Mr Robinson had spent more time on the difficulties and inescapable tensions at those points where the broadcasters' professionalism meets that of the educators. Intellectuals by their nature most problematical area. Here is an approach to the arts and within the arts, literature and within literature, poetry. Here, personalization and imprecision enthusiasm all too often do duty for substance. That the author looks little at such problems helps further to define just what kind of book this is and by what kind of person. It is, by a very intelligent and subtle rather than by an intellectual analyst. But what a good story he has to tell. What great achievement British broadcasting, both educational and educational, has made. And, coming back like the lights and sounds of the later war and early post-war years, ABCA, the radio, the Third Programme, the *Relay*, *Lehrer*, and the *epitaph* "Reli-

lan" emerges as, if it is to be accurately used, so much subtler, more varied and free a set of attitudes than is suggested by the travesty-definitions we are usually offered to day. There is no room for nostalgia in considering all this. There have been giants throughout the decades, and giant creative steps - such as the Open University - have continued to be taken. That is one of our more engaging deep-seated rhythms, to go blundering along by habit much of the time and then to surprise ourselves with a sudden, daringly inventive leap.

How much, one is reminded here as in most works of institutional social psychology, depends on particular individuals at certain moments, on their vision, flair and capacity to fight; and also on the half-hidden, always premeditated, built-in drives of big institutions in themselves.

Mr Robinson sees the sixty years as a successful progress, especially in the increased complexity of cooperation on all sides and by all sides - broadcasters, outside bodies, students; and he is probably right. It is an amazingly undervalued progress. It all bears out one of my own favourite axioms: that the first aim of regulation should be "liberation", to provide living-space for good broadcasting. It underlines also the First Great Truth of the medium: broadcasters should seek to do good; for if they don't they will quite certainly do harm.

Richard Hoggart

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Over qualified

Expanding for Unemployment: politics, labour markets, and the school system, 1850-1973 by Mario Barbagli translated by Robert H. Ross Columbia University Press, \$49.50 ISBN 0 231 05284 7

Most of us think that schools supply more or less what the economy demands. Conditions in the market for labour, fluctuations in the level of economic activity, changes in the techniques of production, tend to direct the educational system in the long run toward the production of suitable school and university leavers. Marzio Barbagli shows, at least for the Italian case, that the reverse is almost certainly true.

Italian education has for more than a century been educating for unemployment, by producing too many of the wrong kind with the wrong training at the wrong level. Nobody who goes into a coffee bar in Rome can miss it, the last behind the espresso machine with the useless *diploma* or *laurea* in philosophy. I was startled to see how far back the process went.

Barbagli argues through a densely packed collection of tables and statistics that we have to look at education from the supply side. In whose interest is the young being educated? It is a disturbing question when put so baldly. Barbagli answers it by asserting that we must look to "the complex

problem of the relationship between the school and the dominant classes and of the actual capacity of the latter to establish educational institutions corresponding to their own interests." He shows too that, however wily the dominant classes may be, they cannot easily succeed in controlling the educational system because they are caught in an essentially insoluble dilemma, what he calls the "selection-socialization balance".

It works like this. If the system of education is open, that is, if it allows children from all schools to go to even higher levels (no selection at 11, no O levels, no assumption by teachers in secondary schools that only "20 per cent are capable of higher qualifications"), no A levels nor limits on university numbers, no course requirements such as Latin or physics, and so on, it will tend to produce too many "misfits", people with higher qualifications than the job market can absorb. If the system is closed, as the English system notoriously is, there may be too few to support the regime.

Support the regime? But pause a moment and ask yourself how much support for the existing order is to be found in Liverpool Toxteth, Notting Hill or the Gorbals, let alone Belfast. Barbagli points out that if England and Switzerland have escaped the acute dilemma between selection and socialization, it is because they have historically offered their young other ways to climb the social structure than education. The tragedy for Italy and for Germany - not the least of the sources of National Socialism and Fascism - was the absence of alternatives. When school failed to give young people the jobs that their hard work and sacrifice had, they thought, earned them; they took the cudgel in hand and battered their way into better positions. How much upward mobility is the present regime in this country going to offer the victims of "the cuts"?

Barbagli also demonstrates the inverse relationship between economic backwardness and the production of over-qualified school leavers. The Italian South, the *mezzogiorno*, has for more than a century been the source of an intellectual proletariat, an army of underemployed, over-educated lawyers, doctors without practices, engineers without factories. As the *mezzogiorno* was to Italy, so Italy has been to Europe as a whole. Some of Barbagli's most striking tables show how Italy was, at once, the country with the highest rates of illiteracy and the highest rates of university enrolment. "Intellectual unemployment and illiteracy", he writes, "are no less than two faces of the same coin: the condition of education in an underdeveloped country".

Barbagli is particularly sharp on the use by authorities of what he calls "dumping schools", schools which are social and educational dead-ends, the old secondary modern type in this country. It is to the great credit of the Italians that they have always noisily resisted the imposition of "dumping schools". Even the Fascists could not force their "reforms" through; police quietly accept the outrageous nonsense told them about the capacity of children to do this or that and allows people to be "dumped" in Barbagli's terms, into schools without exits.

Jonathan Steinberg

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Worthwhile knowledge

Education and the Value of Knowledge by M. A. B. Degenhardt Allen & Unwin, £7.95 and £3.50 ISBN 0 04 370115 9 and 370116 7

Why should it be thought that the pursuit of knowledge requires justification, and why, more particularly, should it be thought that there is any question about the imparting of knowledge to our children? Dr Degenhardt professes to be concerned with such questions, while also revealing an obvious interest in questions about educational curricula.

Education and the Value of Knowledge is the first in a new series of introductory studies in the philosophy of education. It takes us through what Dr Degenhardt sees as possible answers to his questions - theories about the inherent worthwhileness of knowledge, in which Plato, Hirst and Peters rub shoulders, and theories that see the value of knowledge in its leading to other things. At the end Dr Degenhardt lays out the framework of his own answer - that knowledge is of value because it helps us "in the inescapably human enterprise of forming a 'world view' or 'philosophy of life' whereby we set ourselves ends in life." He also hints at how that conception may affect considerations about the curriculum.

I cannot help thinking that this is the wrong answer and the wrong approach. When Aristotle began *De Anima* by saying that knowledge is "a fine and worthwhile thing" he did not mean, or should not have meant, that knowledge of X or Y is fine and worthwhile for persons A or B. It is not always good to have knowledge of anything whatever, and it may not be good for A or B that they should have knowledge of X or Y. If one is concerned with the interests of the individual it is no doubt important, even vital, that individuals should have knowledge of a variety of things; but the sort of general answer that Dr Degenhardt gives to his question smacks of the pretentious decisions about the curriculum: must be based upon a great many considerations, some of them severely practical. On the other hand, the question why we should impart knowledge to our children is not to be answered entirely by reference to what it will do to and for them. There is the hope that it will perhaps produce further knowledge, perhaps in others, for example. If knowledge is a fine thing it is so because it is fine that humanity should have it, not simply and not necessarily John and Mary - although it may be in some cases that humanity will not have it unless John and Mary have it.

The editors of the series say that the books will fill a need for "existing teachers on in-service courses and those still in initial training." I wonder about that "need". Philosophy of education is in a somewhat anomalous position among aspects of "applied philosophy" in that, with very few exceptions, it is not taught in philosophy departments. Perhaps that reflects some judgment on the part of philosophers about education as a possible subject for philosophy. But if teachers are to receive part of their education in philosophy, might it not be better for them to be taught philosophy *per se* and not some distilled applications of it from which the spirit of true philosophy has largely been lost (the same considerations apply to some other forms of applied philosophy - medical ethics, for example)? I would rather that teachers and doctors too should apply for themselves a general philosophical training to the matters which are the subject of their own particular expertise than that they should have presented to them simplified but inevitably second-hand philosophizing about those same matters.

D. W. Hamlyn

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BOOKS

Hunting fame

The "Hound and Horn" Letters edited by Mital Berger Hamovitch University of Georgia Press, \$25. ISBN 0 8203 0607 X

The *Hound and Horn* was founded in 1927 by two Harvard undergraduates, Lincoln Kirstein and Varian Fry. One of a number of little magazines of the period that helped to bring about the modernist revolution in literature, its name was borrowed from two lines of a poem by Ezra Pound: "Tis the white stag, Fame, we're a-hunting / Bid the world's hounds come to horn."

Despite the great expectations implied by the title, Kirstein and Fry began the magazine for the relatively modest purpose of offering a series of critical articles on such eminent Harvard alumni as T. S. Eliot, Henry Adams, and Henry James. A critical essay on Eliot did appear in volume one, and the penultimate issue was devoted to James; but within a short time after its initial appearance the *Hound and Horn* had significantly widened in scope to include creative writing and some visual art, much of it of the very first rank.

Just how vital a contribution the magazine made can be suggested by simply mentioning a few of those associated with it. The editors included, at different times, R. P. Blackmur and Francis Ferguson. Ezra Pound acted as foreign advisor, and the editorial board withstanding, the work of protégé and his own poems and essays. Close to home, Allen Tate and Yvor Winters served as regional editors. Tate encouraged other Southerners to contribute and for his own part, provided poetry, fiction and some outstanding criticism; while Winters in the West promoted the work of friends and colleagues, and used his essays for the magazine as a means of developing his ideas about the moral basis of literature. As for the contributors, the list is staggering. Katherine Anne Porter, e. e. cummings, T. S. Eliot, William Carlos Williams, Wallace Stevens, Marianne Moore, Picasso, Walker Evans: these were just a few of the people who helped make the *Hound and Horn* one of the most significant and influential journals of the period.

Because a number of restrictions were placed on the use of material, the *"Hound and Horn" Letters* is necessarily selective. Even so, what is offered here is a new perspective both on the magazine itself and on a crucial moment in modern literature. The letters touch on many of the major issues of the time: modernism, Marxism, agrarianism, the New Humanism, the threat of fascism, the Depression. They argue, sometimes fiercely, over the determinedly aesthetic distance adopted by the editors - their refusal, as one unsympathetic commentator put it, "to face the grave social problems of the day."

On a more personal level, they also offer fascinating glimpses into the lives and opinions of the famous. Katherine Anne Porter writes asking if she can be paid for "Flowering Judas"; immediately as her position is, as she puts it, "precarious". Kenneth Patchen reports that it is difficult for him to write because he is working in a factory and feels "utterly done in at the close of each day". E. Lawrence assures Kirstein that he is "just an average chap"; while Kirstein advises the actor James Cagney to have a look at Melville's *Israel Potter*. There are plans for Ferguson, Winters, and the nuclear physicist, J. Robert Oppenheimer to visit Tate; numerous distillations (from Archibald MacLeish, for instance, on the fact that there is "too goddam-mmmmm thinking" in the world and from Pound on the "mad house" of America); and always there is debate and controversy, much of it just as engaging as the work the editorial board chose to publish.

In time, like all little magazines it seems, the *Hound and Horn* died; and these letters chart, in their own idiosyncratic way, the reasons for its demise. It became increasingly difficult for the editors to maintain their political detachment. Most of them began, anyway, to drift off in pursuit of their own particular interests. And Kirstein, who had been from the beginning the chief support of the magazine, grew disaffected, choosing to devote his energies and eventually the money at his disposal to the development of American ballet. The *Hound and Horn* ceased publication in 1934, its most fitting epitaph provided, curiously enough, by one of its fiercest critics. Writing in the *New Republic* at the time, Malcolm Cowley declared dismissively, "The *Hound and Horn* followed no political policy; it tried to be merely a repository of good writing." It did indeed: which is why both the magazine and these letters are still worth reading today.

Richard Gray

Dr Gray is reader in literature at the University of Essex.

Gentle balancing

The Definition of Literature and Other Essays by W. W. Robson Cambridge University Press, £19.50 ISBN 0 521 24495 1

Professor Robson's critical essays have a quality rarely found in modern academic discussion of literature. He tells us in his preface that "recent attempts to make literature more 'rigorous' have sometimes only succeeded in alienating it from many authors and readers" and that his own discussions "are written in what I hope is plain and straightforward language." They are; but this does not mean that they are journalistic or superficial or that they evade difficult and complex questions.

Professor Robson has a gift for what might be called lucid rational discourse. He sometimes uses technical terms, but only when no others are available; and he always makes clear in the context what they mean. He tells us in his preface that "the style that speaks to all of us" is his aim. It is the *tone* that continually strikes the reader. Assured yet modestly tolerant, affirmatively of his own values; capable of gentle but firm critical rebuke to perpetrators of illogicality, confusion; generous in seeking out what is of worth where it can be found; but impatient of silliness and pretentiousness; fresh and original in argument; yet never friskish or exhibitionist: all this can be said of these essays and of the personality that can be discerned behind them.

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David Dalches

David Dalches's most recent book is a study of the eighteenth-century Scottish poet Robert Ferguson.

John Skelton: the complete English poems, edited by John Scattergood, does communicate an ascertainable meaning. He does not believe that

an interpretation is ever verifiable, but does believe that we can reach a reasonably likely account of a poetic work. Rodway is certainly unashamed about, and fully conscious of, his allegiance to tenets thought of by many as rightfully resident twenty years past.

However, the interest of the book lies in the short, close studies of the poems. They are from many periods, as early as Anon, Marvell and Shakespeare, up to Craig Raine's postcard from a Martian and a poem each by Larkin and Hughes. The poems are in random order, and this has a certain exhilaration about it. Each of the 22 chapters deals with one poem, although occasionally it is illustrated by a second from the same author. All four of Yeats's great odes are given in a long and intriguing discussion of "To Autumn".

Different readers will probably value the separate chapters very differently. Often Rodway begins with a "reversal" method: "At first sight they are accused of being 'common-sensical'. If I have him right, it is in response to this state of affairs that Dr Rodway has produced his series of studies of twenty or so short poems for the benefit of undergraduates or sixth formers.

Rodway is explicit about his intentions. He sees his readers as "craft apprentices" in criticism; his aim is to bridge the gap between theoretical and practical studies, in the sense that he offers to consider separate poems on their own merits, but bringing different sorts of evidence or approach (criticism, metacriticism, scholarship, allied disciplines such as psychology) in so far as the "purpose" - a key term - of each poem seems to require it. One feels perhaps that the result is valuable less in the sense Rodway seeks than in the directness with which the reader experiences criticism actually going on in each of his chapters, and the interpretation of each poem, whether we accept it or not, actually surfacing under the various spotlights Rodway throws on it.

It is in fact rather clear (though not put beligerently) that the author is of the traditional school, believing in "the common pursuit of true judgment", literary sensibility and Hirsch's useful meaning-significance distinction, as against "today's trendier theorists", although Marxism, sociology and structuralism are all given their passing due. Rodway's assumptions - and he calls them that - are that we share a common language and inheritance, and indeed assumptions themselves, and that language does communicate an ascertainable meaning. He does not believe that

Close studies

The Craft of Criticism by Allan Rodway Cambridge University Press, £16.50 and £4.50 ISBN 0 521 23320 8 and 29909 8

We are beset with new accents in literary criticism. There is no value-free approach, less still the examination of the poem "for its own sake", and the centre of gravity in literary studies has come to seem a vying between various kinds of approach rather than their application to literature itself, in so far as that entity continues to exist. On the other hand, even studies which appraise a poet's oeuvre directly and closely are unlikely to make explicit their modes of approach. For that very reason they are accused of being "common-sensical". If I have him right, it is in response to this state of affairs that Dr Rodway has produced his series of studies of twenty or so short poems for the benefit of undergraduates or sixth formers.

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BOOKS

Money for Labour

Trade Unions, the Labour Party and the Law
by K. D. Ewing
Edinburgh University Press, £18.50 and £9.75
ISBN 0 85224 436 3 and 453 3

No doubt more by accident than design, the publication of this book was extraordinarily well timed, since it coincided with Mr Tebbit's polemical Green Paper on further steps to change industrial relations law. When this is coupled with the current internal troubles of the Labour Party, an important ingredient of which is the party's financial dependence on the trade union movement, the result is two hundred pages of highly topical reading.

Dr Ewing's book is a study of the 1913 Trade Union Act, which is the main source of regulation of the financial links between the trade unions and the Labour Party. It looks at the subject from three different perspectives. Part one is historical, covering the background to and the reasons for the legislation. Part two considers the Act from a legal perspective, examining the problems that arise for a lawyer in its administration and the effect of the Act on the relationship between unions and the Party and addresses arguments for its reform. On the face of it, part two may not seem to be of great interest to the non-legal reader, but this would be a mistake. In arguments on industrial relations and the behaviour of trade unionists, unsupported conclusions fly around like grapes. The annual reports of the Certification Officer (formerly the Chief Registrar of Friendly Societies) and the details of the cases which come to him are vital sources of evidence which ought to inform the arguments which are going to be rehearsed in connection with the Green Paper. They are well analysed by Dr Ewing.

The two main principles behind the 1913 Act were, first, that trade unions should legitimately be able to pursue their members' interests through political organizations and be able to give financial support to such organizations; but, second, that no individual member should be obliged to support a political party financially if he does not want to, and if he dissents from the majority and refrains from supporting their chosen party he should not suffer disabilities or disadvantages in his membership as a result. The Act pursues these two principles in a number of ways. It sets out the conditions for the adoption of political objects, the subsequent adoption of rules for the establishment of a separate fund into which the members might contribute, and bars to discrimination against dissenters.

The Conservative government's Green Paper accepts the validity of the two basic premises of the legislation, but is dissatisfied with some aspects of the mechanism of regulation, in particular the fact that the ballot is a once-only affair where members' opinions on political expenditure and affiliation may change. Second, that members are required to pay the political levy unless they contract out of doing so (as opposed to taking a positive step to contract in) and that the "check-off" system makes it even more likely that non-Labour voters contribute to Labour funds simply out of apathy or ignorance that they are doing so; and third, that anti-discrimination rules need reform, especially in dealing with trade union rules and practices which prevent or deter dissenters from holding union office.

By contrast, Dr Ewing's starting point for discussion is quite different. He asks the fundamental question: "Conveniently overlooked by most critics of the present law is the political nature of the Green Paper." He argues that the Green Paper is a study of the

removal of the present legal rules would not be advantageous. His criterion for judgment seems to be what is advantageous to the Labour Party and Labour supporters within the unions, which is not an approach which will commend itself to all readers, but his general support for the constraints is principled to the extent that he accepts that where a closed shop operates the member who dissents ought to be protected from the usual implications of majority rule. However, he finds this view "less forceful" in the light of the wide conscience clause introduced by the 1980 Employment Act, and he finds "a more convincing argument" against lifting legal constraints to be that it would be unlikely in practice to make much difference to the level of trade union spending on political objects.

To read the history of the 1913 Act and then to read the Green Paper is to appreciate that on this subject there is no new argument under the sun. The author refers to the Conservative Party having recently "flirted with the idea of restoring contracting in". Since then Mr Tebbit has done more than flirt: he

has proposed. There is unlikely to be any marriage this side of a General Election, but if the subject is there after still on the agenda, Dr Ewing's book should be compulsory reading for politicians. It is useful to be reminded, for example, of the ways in which the unions got round (or ignored) the contracting-in rule the last time it was introduced - in the anti-union legislation of 1927 which followed the General Strike. It is also useful to be reminded of the implications of the debate for Labour Party finances. Naturally, if you read the Green Paper you would not dream that that was a connected issue. As you would imagine, Mr Tebbit's paper is all about the protection of the individual from the oppressive majority in internally undemocratic trade unions, which since 1913 have become "larger, richer and more powerful". At least Dr Ewing's readers will not be deceived.

John Rear

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A game of wits?

Censorship and Political Communication: examples from Eastern Europe
edited by George Schöpflin
Frances Pinter, £15.00
ISBN 0 86187 261 4

What do Watergate, Hog's Bladder Disease and foreign currency exchange rates have in common? Answer: they were all topics banned from the Polish media at some time during the mid 1970s. Together with hundreds of other topics, names and books, they appear in the "Instructions for Censors" smuggled out of Poland by a disillusioned ex-censor.

A long extract from these instructions forms the core of George Schöpflin's collection of documents, interviews and comments relating to censorship in Eastern Europe. In addition to a comprehensive selection of Polish material, which takes up two thirds of the text, the book has sections on Czechoslovakia, Hungary, East Germany, Romania and Yugoslavia. All the documents have been well chosen to convey the scope and *modus operandi* of censorship in communist states. Some explanatory notes might have made it easier for the non-specialist to appreciate the full significance of some of the material, especially the documents into context for the general reader. In a succinct and perceptive introduction, where he rightly observes that censorship within Eastern Europe varies in method rather than intent. For reasons of ideology and legitimacy, all these states insist on public unanimity and believe information to be "as much a component of political power as the police or the armed forces".

Controls over information range from traditional systems of comprehensive prior censorship to the more selective ones relying largely on self-censorship. The sections on Czechoslovakia and Poland vividly illustrate the mechanics of traditional censorship. Sited in offices throughout the country, censors check all printed materials - even visiting cards and letterheads were scrutinized in Poland in the 1970s - for anything out of line with official regulations. And political issues such as relations with the Soviet Union, through to topics like the abolition of "boxings" which the authorities in these states may be attributed in part to the "hysterical caution of insecure politicians; they are also the result of censors drawing up business to justify a large censorship establishment".

A plausible picture of censorship, as a mixture of business and gamesmanship, emerges from the most revealing piece in the volume - an interview given to the *Solida* weekly in 1980 by a journalist who had been employed in the analysis and training unit of the War

saw censorship office. A few censors think they are helping to strengthen the country's stability, but most apparently regard the tussles with editors and writers as a game of wits, admitting those most adept at getting around the rules. Even the nicknames of the various sections have a sporting ring: those censors dealing with religious publications were called the "Saints" (the "Funnies" looked after plays and films while those sparring with the daily and weekly press, at the front-line of the contest, were dubbed the "Aristocrats").

What emerges from this account as well as from the lists of items banned by the Polish and Czechoslovak authorities in the 1960s and 1970s is that traditional censorship is both cumbersome and inefficient. And in fact many East European regimes have moved increasingly to systems based more on self-censorship, but accessible by the confiscation of "unacceptable" publications. When published, their books will not be distributed if the censors find even one "objectionable" passage, as is the case of Czechoslovakia for instance, they will exercise extreme caution in vetting manuscripts. Writers may find their work cut more extensively by reading groups composed of colleagues than by professional censors unaffected by personal rivalry. At least, this is how Paul Goma, a prominent Romanian dissident writer, views the recent transition in his country from externally-imposed to group self-censorship.

Self-censorship has long been used, of course, by the Yugoslav and Hungarian authorities whose relative flexibility and tolerance makes them appear liberal in the East European context. Hungarian journalists, writers and academics know fairly precisely what will and what will not fit the "profile" of various kinds of publication. Different types of information flow through distinct "circuits" serving different sections of public and specialist opinion. Regulating information in this sophisticated fashion, the Hungarian regime has been able to maintain overall control while avoiding the burgeoning of *szamizdat* and a "second public opinion" of a Polish or Czechoslovak scale.

In most of Eastern Europe, however, decades of heavy censorship have created such widespread distrust of all official information that governments are not believed even when they occasionally tell the truth. As all communist regimes come under mounting economic pressures, so perhaps they will recognize the purely pragmatic need for a freer play of ideas and information to stimulate efficiency and build up government credibility. Meanwhile censorship remains a central feature of East European states. What is interesting is that, even though the elaborate systems of censorship cannot ensure complete public uniformity of opinion.

Alex Pravda

Dr Pravda is lecturer in politics at the University of Reading.



Gandhi taking his morning walk at Juhu Beach, 1944, taken from Gandhi's Man by Eknath Easwaran (Turnstone Press, £5.95).

Colonial regimes

The Transfer of Power in Africa: Decolonization 1940-1960
edited by Prosser Gifford and W. M. Roger Louis
Yale University Press, £25.00
ISBN 0 300 02568 8

This hefty volume is the product of a deliberate attempt to gather the senior historians of tropical Africa to record, from the hindsight of twenty years, their considered view of the process which led to the end of the colonial empires. What is presented is the conventional wisdom, important for who says it as much as for what it says. Fifteen of the twenty authors are or have been professors; only two are Africans. The story they tell is, for the most part, metropolitan one. In asking why decolonization took place when it did, and how it did, they place European governments and colonial officials at the centre of the stage. Nationalist leaders, and the political movements which suddenly projected them into prominence, have no more than a walk-on role. They are there to provide the problems to which colonial administrations sought solutions.

Oddly, since this is the only explicitly Marxist piece in the collection, it is Jean Suret-Canales who provides the best thumbnail consensus: "The empires did not deliberately decide upon decolonization, did not desire it, and did not really prepare for it. It simply happened, and measures that today appear to be independent preparatory steps toward independence (were) in fact never intended to lead to it... but, on the contrary, meant to raise an obstacle to it by granting partial concessions calculated to preserve the essence of imperialism." (pages 476-7).

This is familiar enough in the case of de Gaulle, whose reputation as a decolonizer, Yves Person points out, is "strangely undeserved", but the same picture emerges from two sharply contrasting exercises in decolonization, one widely acclaimed as a success, the other obviously a disaster. Cranford Pratt argues that the measures pursued by British colonial governments in Tanganyika after the Second World War, notably the misguided attempt at multiracial partnership in a territory overwhelmingly African, only increased the difficulty of the eventual transfer.

The Belgians in the neighbouring Congo were, as Jean Stengers shows, in what is for a British reader the wise only in being more astute: convinced that they had already discovered the correct formula for colonialism, they felt no need to take the measures on which the French and British embarked in order to shore up their own less satisfactory systems - measures which, however fortuitously, provided the groundwork for a peaceful decolonization. Stengers also most judiciously expresses

the dilemma of colonial regimes committed to the need to maintain friendly relations with their subjects these could only be purchased by a renunciation of force (in Belgium any case ruled out by domestic political considerations, in France by the Algerian war), and by a rapidly escalating level of political concessions which resulted in the dissolution of the empire which the concessions were initially intended to maintain.

An almost incidental result of turning decolonization into an accident is to undercut those theories which see in it a deliberate attempt to implant a neocolonial order, in which the colonial powers could maintain the economic benefits of empire without its political opprobrium or administrative cost. This is in a sense far enough: while the colonial powers did in fact retain much of their economic stake in Africa, this was done more as a set of improvisations than as a grand design.

Who are "creation scientists", what do they argue and what does real intellectual tolerance require of us? These are the questions posed and answered by Philip Kitcher, an associate professor of philosophy at the University of Vermont. His book will serve admirably as both a source of information for anyone interested in the issue and a handbook for educators who need to have the arguments for both sides clearly spelled out.

The book starts with the most lucid account I can remember of modern evolution theory. For the novice, Kitcher describes in simple language the essential facts and concepts from Darwin, through Mendelian, molecular and population genetics to speculation and the fossil record. He then starts a chase. Creationists have chosen many battlegrounds on which to fight evolutionists, and they are successfully defeated on each of them.

"Creation scientists" have been and are using wholly disreputable tactics in their attacks on evolution theory. Their attacks on evolution publication to publication, and sometimes even within a single text. For example, their three most common attacks are: that evolution theory makes no predictions and is therefore unfalsifiable; that evolution theory makes false predictions and is therefore falsified; and that observations made and experiments undertaken by evolutionists have no bearing on evolution theory. Kitcher quotes examples of all three lines of attack made by the same author in the same book but, of course, the position is suspect since the first and second statements contradict each other.

Nevertheless, Kitcher goes on to analyse cases in depth. Does modern evolution theory rest on tautology? Is evolution theory scientific? Is the Earth old enough to have allowed such a diversity of life to evolve? Does the second law of thermodynamics contradict evolution theory? Can the fossil evidence be interpreted to support a process of gradual evolution? On each issue, the evidence is carefully evaluated and all too often it is evident that "creation scientists" have deliberately mis-

Do not abandon science

Abusing Science: the case against creationism
by Philip Kitcher
MIT Press, £10.50
ISBN 0 262 11085 7

When Ronald Reagan was running for office as President of the United States of America, he told one questioner that he thought there were some problems with the theory of evolution. This should not, perhaps, be seen as Reagan's own opinion but rather the view which would attract most votes. One reason that an anti-evolution stance attracts votes rests on an unholy alliance between the infamous "moral majority" and a group of charlatans who call themselves "scientific creationists". The first step in their joint campaign is to get legislation passed in each US state which would ensure that evolution theory and "creation science" are given equal time in high school curricula. There have been astonishing successes: one state (Arkansas) has the law in operation and 17 state legislatures have introduced bills which would require the teaching of "creation science". The United Kingdom is not immune from this movement. For example, two years ago a self-appointed high priest of the Institute for Creation Research, Duane Gish, visited Britain for a series of debates. And several weeks ago the campus radio at my own university was running a programme on the issue.

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BOOKS

BIOLOGICAL SCIENCES

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represented the facts in order to produce an apparent contradiction. In many instances they are guilty of quoting scientists out of context, and on this issue I particularly appreciated Kitcher's quotation from Gish: "There should be no room for question, no possibility of doubt, no opportunity for debate, no rationale whatsoever for the existence of the Institute for 'Creation Research'." Critics by "creation scientists" of modern evolution theory are shown to be without foundation.

But what of "creation science" itself? Perhaps it should be taught in schools and universities? Are we not a tolerant society? Kitcher agrees that creation can be taught as religion but dismisses its status as a science. The main reason is simple: science is internally consistent. "Creation science" would require that we abandon large parts of the physical as well as the biological sciences. We would have to teach "flood geology".

The Genesis account of the Earth's age is inconsistent with the ages of rocks calculated by methods based on rates of radioactive decay, and so modern physics and chemistry would also have to be drastically revised. Yet there is not a single problem to which "creation science" provides a detailed solution; all we have is Genesis.

The final charge made by creationists would seem to be a side issue were it not for the time they devote to it. According to Henry Morris, the director of the Institute for Creation Research, evolution theory is "the root of atheism, communism, nazism, behaviourism, racism, economic imperialism, militarism, liberalism, anarchism, and all manner of anti-Christian systems of belief and practice". Even if this was true, it would be irrelevant.

Philip Kitcher has written a clearly argued, well informed and timely text for which the scientific community will be grateful.

Paul Harvey

Paul Harvey is a lecturer in biology at the University of Sussex.

Marine mammals

The Ecology of Whales and Dolphins
by D. E. Gaskin
Heinemann, £25.00
ISBN 0 435 62286 2

This excellent book covers in detail many aspects of the biology of cetaceans and refers directly or indirectly to virtually all useful research published up to 1980 on ecological topics. It is clearly written by an expert marine biologist who has had practical experience of whales at sea, has been on factory ships and on research expeditions, has worked in laboratories and has had to grapple on government committees with the many problems concerning whales and whaling that require national and international action.

Each chapter reviews the available scientific evidence and discusses its relevance and reliability. Personal observations and opinions are also included, even the occasional light-hearted commentary that will undoubtedly help the reader through some heavy assemblages of information. Many chapters end with a useful summary or thought-provoking remark.

The book starts by dealing with seasonal migrations, feeding and breeding grounds and the distributional ecology of the recent past. Diet and feeding behaviour form an authoritative second chapter. With much on the interesting activities of hungry fin whales, a well argued account deals with food intake, metabolism and the "energy budget" concept. The inputs, storage and outputs of energy for one whale is shown schematically in figure 3.2 which ought soon to find its way into standard textbooks. Questions arise about basic assumptions on feeding rates, food distribution, mortality rates and existence in water so cold that theoretically no cetacean should be there.

The chapter on social structure, and social behaviour is distinctly critical, even dismissive, of much recent work. It covers many topics: morphology, epimeletic care, echolocation, communication, animal intelligence. Though entertaining, it is wordy and discursive; having urged us to be strict in thinking about whales and use terms and concepts applicable only to cetaceans in their environment, we are nevertheless subjected to asides on the behaviour of birds, ungulates, cats, wolves, elephants, primates and Man.

The chapter on cetacean evolution is mainly a review of morphological evidence with brief reference to karyotype studies but none to recent haematological findings. The sperm whale could provide an answer to many questions if we knew for certain how early it had evolved. An appendix giving a list of living cetaceans seems oddly placed, as there would seem to be good reasons to have both it and the chapters on zoogeography and on species right at the start. These are two interesting essays and worth careful study by all who wish to understand how the present distribution of cetaceans could have occurred.

The technical account of population analysis should be compulsory reading for all committees considering the whaling problem. Conservationists should examine figure 8.13 giving a scheme for determination of population dynamics and note that certain types of data are almost impossible to obtain without killing whales. The confidence that ecosystem modelling would provide a solution for all problems has not been sustained: as yet, the author maintains, no workable methodologies have been developed. Management problems are dealt with objectively and practically; some philosophical attitudes enter the argument and a call for deeper insight rather than models linked with a condemnation of a failure to appreciate ethics. An informative final chapter is a technical review of fifteen years' research on environmental contaminants and how cetaceans will have to live with them, if they can.

Professor Gaskin does not avoid the major sensitive issues: why harvest whales, are whales destined to become extinct, are whales intelligent, and is there a problem about contaminants? He is strongly against prevarication over answering these questions, and against the argument that it is too early to come to decisions until more information is available. Certain broad conclusions can be drawn, he maintains, and Professor Gaskin draws them with a refreshing, unemotional, no-nonsense frankness. Enough of these fabrications about a prime level of society among whales, about strict territoriality, about intent or content in their activities: it is hard to see, he writes, how any whale can be ranked much "higher" than an elephant or hippopotamus. Unfortunately, he rather dilutes from the start the strength of his robust declarations by an admission in the introduction that "we know so little about these animals that many of my conclusions simply have to be wrong". He should have more confidence.

Richard Harrison

Richard Harrison is emeritus professor of anatomy at the University of Cambridge.

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Peter J. Mill

This well illustrated text provides an introduction to neurobiology for undergraduates, with examples chosen from both vertebrates and invertebrates.
£9.95 paper 272 pages

Edward Arnold
41 Bedford Square, London WC1B 3DQ

Fish biology

Biology of Fishes
by Q. Bone and N. B. Marshall
Blackie, £11.95
ISBN 0 412 00151 9
Fisheries Ecology
by T. J. Pitcher and P. J. B. Hart
Croom Helm, £16.95
ISBN 0 85664 894 9

There are some 20,000 species of fish in the sea and in fresh waters; a few even spend much of their time on land. Since there is a great variety of form and function, it is not surprising that biologists have found that fish are interesting material for study. They also provide a major world protein resource, with the annual harvest running between 60 and 70 million tonnes.

Poor management and natural fluctuations have led to serious overfishing, especially in the past two decades. Declines in catch, particularly of "industrial" species like the Peruvian anchoveta, cause increases in the price of animal feedstuffs and so affect the cost of living worldwide. Research into fish at universities, Government institutes and fisheries laboratories has been considerable both from the pure scientific and applied aspects, and one might take issue with a statement in one of the books that fish are the least known class of vertebrates.

Both books are written for the advanced undergraduate or MSc student and provide background reading, bibliographies and easily assimilable information to reinforce lecture courses. *Biology of Fishes* is a paperback in Blackie's Tertiary Level Biology series. It is strongly biased towards physiology and functional anatomy but is weaker on behaviour. Thus, swimming mechanisms are fully

described but little is said about schooling.

The larval stages are not given quite the emphasis justified by their importance and by the fact that larvae are free-living, often for many weeks or months, and have incomplete organ systems and special adaptations. In other respects the book is well balanced and gives a highly concentrated but readable account of fish biology. The figures seem largely to have been redrawn from the original publications in a composite, innovative and very useful form, although here and there they have been spilt by over-heavy stippling and labelling.

Hitherto fisheries courses have lacked a textbook and students have been obliged to use a range of books on ichthyology, marine ecology or manuals produced by international fisheries agencies. *Fisheries Ecology* now largely makes good this deficiency. Since larval survival and recruitment are a key issue in fisheries biology this subject is fully treated, but fish behaviour and fishing gear are inadequately dealt with; and the chapter on fish farming does not do full justice to such an important and developing field.

Nevertheless, the book, though not a manual, will be an essential text for fisheries courses. Examples are taken from all over the world and an excellent synthetic approach is adopted giving the book a wide appeal. The mathematical treatments are not too advanced and the book is adequately provided with illustrations, although the reproduction of these is often spilt by the poor quality paper.

The appearance of these two books about the same time simplifies the problem of assembling reading lists for specialized marine biology or fish and fisheries courses.

J. H. S. Blaxter

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BOOKS

BIOLOGICAL SCIENCES

Gene conversion

Genetic Recombination: understanding the mechanisms by Harold L. K. Whitehouse Wiley, £23.75 ISBN 0 471 10205 9

Most people who have heard of genetic recombination at all probably associate it with what has come to be called "genetic engineering" — the deliberate experimental restructuring of the genetic material (genome) of organisms through cutting and splicing their deoxyribonucleic acid (DNA). The discovery of means of artificially recombining DNA molecules has indeed led to spectacular advances in our knowledge of gene structure and activity and has also excited public and journalistic concern about possible (but, it now seems, very improbable) hazards.

Dr Harold Whitehouse's new book is not at all concerned with these *in vitro* tricks but rather concentrates on the ability of living organisms of all kinds to recombine their DNA without any human intervention. His concern is mainly with what is sometimes called legitimate recombination, in which homologous (largely similar but not necessarily identical) segments of DNA are exchanged with or substituted for one another. He gives only seven pages to the movable DNA sequences, now known to occur in many species, ranging from bacteria to mammals, which can get themselves illegitimately inserted into almost any site in the genome and have acquired considerable notoriety as possible molecular parasites or "selfish DNA". This selectivity makes a good deal of sense in that our knowledge of movable sequences is perhaps moving too fast at present for definitive review.

Homologous genetic recombination is one of those classical biological problems that can be seen in an entirely new light as a result of the great advances in molecular biology during the past 30 years. Reciprocal exchanges (crossovers) between homologous chromosomes of plants and animals has been known since the early days of genetics; they were postulated in the first instance as an explanation for the finding of incomplete linkage between genes, and were confirmed by direct observation of chromosomes with the micro-

scope. Crossing-over in sexually reproducing organisms occurs with high frequency during meiosis (the reduction of the chromosome number from a double to a single set) which, in higher plants and animals, immediately precedes germ cell formation.

The study of the genetics of bacteria and bacterial viruses (bacteriophages), starting in the 1950s, showed that genetic recombination could occur with high frequency in the absence of any proper sexual reproduction. Any two homologous DNA molecules that happen to be present together in a bacterial cell, whether they are of virus origin or belong to the bacterium's own chromosome, turned out to have a high chance of recombining with each other. This was not only important in itself; it also opened the way for investigations of molecular mechanisms which might, with luck, apply to recombination in all organisms. This is because the bacterial and, to an even greater extent, bacteriophage DNA is much less complex and consequently easier to isolate and study than the DNA of higher cells.

Dr Whitehouse's own special field has always been the fungi, some species of which have the great advantage that their meiotic products are spores that can be individually cultured and characterized. His work, together with that of many other fungal geneticists over the past 30 years, has shown that meiotic recombination is by no means the simple and clean cutting-rejoining process that it was once supposed to be. In particular, gene conversion, a unilateral rather than reciprocal transfer of homologous genetic information, is found to be a frequent event in the immediate vicinity of crossovers. The flagrant violation of Mendel's Law occurs also in animals (at least in the fruit fly) but is far easier to demonstrate in fungal material.

In the early 1960s Harold Whitehouse and his former student Robin Holliday were (independently) responsible for the first clear expression of the idea that synapsis — the accurate point-for-point alignment of homologous chromosomes which is the essential prerequisite of homologous recombination — involves complementary pairing of single DNA strands, unravelled from different double-helical molecules. As a result of this crucial insight, Holliday was able to propose that gene conversion was due to the correction of base-pair mismatches in hybrid DNA.

This was all prompted by the need to explain the fungal results; the confirmation that DNA molecules can and do behave in the ways proposed came later, mainly from experiments on bacteriophages of different kinds. Comparable experiments on fungi and higher organisms are much more difficult, however, and some questions about the recombination process, in particular the molecular na-

ture of the genetically established connexion between conversion and crossing-over, can only be answered by plausible conjectures as yet unsupported by direct molecular evidence.

The field is a complex and difficult one, with an abundance of information about genetic phenomena and a considerable freedom for interpretation. Dr Whitehouse's method is to give a meticulous and critical review of the evidence, one experimental system at a time. Starting with an account of the use of isolated DNA for the transformation of bacterial cells (a classical phenomenon, the molecular basis of which is becoming increasingly well understood) he proceeds in successive chapters through three kinds of bacteriophage and the bacterium *Escherichia coli* to a long chapter on fungi and higher organisms (particularly *Drosophila*) that is really the culmination of the book. The final brief account of movable sequences seems something of an afterthought, though useful as an introduction to the subject.

A large amount of primary data is presented to the reader in the form of figures and tables that are often ingenious, usually enlightening and only occasionally obscure. Even the obscurities have their value as challenging, soluble puzzles. The author can hardly be faulted on his facts — few indeed can have studied the literature with such care. Little of relevance is omitted. In contrast with the bold speculations that he has sometimes given us in the past, the conclusions in this book are generally cautious, which is not to say that they lack interest.

My main criticism, if it is one, is that the book is hard to read. One certainly cannot sit down and just read even one chapter straight through, not, at least, with understanding. It is necessary to work through the book, paragraph by paragraph and table by table, preferably with a pencil and paper to hand. However, although the ideas are complex, the writing is clear, and the persistent reader will emerge with a real understanding of the subject.

Dr Whitehouse has produced a work of scholarship that is likely to remain a standard reference for many years to come.

J. R. S. Fincham

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Under the scalpel

Comparative Neurobiology by P. J. Mill Edward Arnold, £9.95 ISBN 0 7131 2810 0 An Introduction to Neurophysiology by J. F. Stein Blackwell Scientific £12.00 ISBN 0 632 00582 3

Neurobiology is a star performer in the rapid expansion of biological science and the swelling ranks of research scientists professing, with good reason, to contribute to our understanding of human brain function through studies of non-human animals including invertebrates, should ensure a healthy market for authors of texts in comparative neurobiology.

Unfortunately the plethora of facts and opinions engendered by those who delight in trawling the vast riches of the animal kingdom makes the task of crystallizing past achievements and identifying future trends in comparative neurobiology into a comprehensive text for undergraduate students one of Herculean proportions. There is no shortage of texts which consider the neurobiology of lower vertebrates and invertebrates but these are either too superficial for the advanced student or not truly comparative, concentrating as they do, on a single species or phylum. In *Comparative Neurobiology*, Dr Mill attempts a comparison of vertebrates and invertebrates, which should earn him a medal for bravery at the very least.

His textbook reflects an awareness of the intimidation felt by many biologists, especially those with weak



William Morris's "Anemone" design, 1874. Taken from *William Morris Textile* by Linda Parry, published this week by Weldonfeld & Nicholson at £20.00 and £9.95.

backgrounds in the physical sciences, when first exposed to neurophysiology. But by devoting over one third of his book to basic structural and functional properties of excitable cells he has denied himself the opportunity to develop fully a central theme to serve as a vehicle for comparing nervous organization and function in different animals. (In particular, I question the need to elaborate the mechanical properties of muscle in a neurobiology text.) An evolutionary approach would probably have dispelled the impression of factual overload and provided more satisfaction for those students seeking insight into what is clearly a complex field of endeavour.

Despite its shortcomings, this book is well presented with good line diagrams and a most readable style. The structure and function of sense organs are dealt with thoroughly and there is a useful introduction to the growing field of neuroethology. According to the author his book is likely to be read by advanced undergraduates. Perhaps in his next edition Dr Mill will shorten, or better still, expand its lengthy preamble, expand its discussion of vertebrate nervous systems and include some ideas controversial and insightful which can flow so readily from the pen of an experienced neurobiologist.

Dr Stein's book is essentially a primer for medical students and psychology undergraduates and makes few concessions to comparative neurobiology. His immodest preface is critical of other texts on human (mammalian) neurophysiology in a manner guaranteed to lose him friends among the author fraternity which he now joins and may place his more discerning readers on their guard. This is a pity because his well-written textbook achieves most, if not all, of its admirable objectives. Given the tradition of excellent mammalian neuroscience at Oxford University I would not have expected otherwise.

The anatomy of mammalian brain and spinal cord are clearly described and students will be grateful to the author for his cautionary comments about structure-function relationships, especially when applied to areas such as the cerebellar cortex

P. N. R. Usherwood

P. N. R. Usherwood is professor of zoology at the University of Nottingham.

A second edition of P. J. Bentley's *Comparative Vertebrate Endocrinology* has been published by Cambridge University Press at £32.50 and £12.50.

BOOKS

BIOLOGICAL SCIENCES

Interferon hysteria

Interferon: the new hope for cancer by Mike Edelfort with Jenn Lindenmann Orbis, £6.95 ISBN 0 85613 453 8

Popularizers of science have a difficult task. On the one hand if they use the technical terms of the scientist they baffle the public, but on the other hand if they oversimplify they can distort the science. The problem is more acute in medical research, especially if a life-threatening disease is involved. The public naturally enough wants rapid and significant progress — "Professor, is it a breakthrough?" is the almost universal question asked by newspaper science correspondents — and the scientist, anxious to please his public (who after all, often support him, either directly or indirectly), may succumb to the temptation to exaggerate the case.

Interferon particularly has suffered from this problem. Discovered 25 years ago by Isaacs and Lindenmann in London, its antiviral effect was clearly of potential value in combating virus diseases, and a British working party, drawn from the pharmaceutical industry and the Medical Research Council, worked throughout the 1960s to see whether this was so. There was "hype" and then the inevitable reaction — a disillusionment that devalued interferon's true worth against viruses.

This has been even more true of the effects against cancer. Early trials in Sweden raised hopes for an effective treatment against osteogenic sarcoma, and further trials against other cancers were needed. However, there was not enough interferon, it was necessary to raise substantial sums of money to make it, and that meant persuading granting authorities to release several million dollars. In this process, interferon's prospects were oversold, there was a reaction and we now need several years' patient research in which to evaluate its true worth.

It is in this context that this book must be judged. It comes with a statement without any question mark that is immediately misleading. However much the book qualifies that statement, it is the sub-title itself that will catch the eye of anyone who fears cancer; and that is most of the population. The publisher's blurb continues the hype: "This book builds... on the conviction that interferon could be a fulfilment of a longstanding dream", and the first chapter of the book "The agony of expectations" is written in such a manner as to raise expectations deliberately. It is of course a standard journalistic stratagem to use the first paragraph to entice the reader to continue, but it is a stratagem that I find distasteful when dealing with human cancer.

This first chapter starts with the incidents in Glasgow where two young cancer sufferers were treated with interferon, claims were made of dramatic effects against the cancer, and amid a blaze of publicity, the patients died. Triggered by these extravagant claims, the media had a field day and many incurable cancer patients had their hopes cruelly raised. I was one of those who received the sad, sad phone calls, and we could not help. The incident caused nothing but harm, and despite attempts to restore the balance, retelling it now can only revive vain hopes — especially when the text baldly states "interferon, in use so far, is keeping people alive" — not a totally untrue statement, but given the limited nature of interferon's effects, a very misleading one.

The main body of the book is about how interferon is formed and works. The author obviously thinks that slang makes science easier to understand, for I can see no other

reason for sentences like "The infected cell begins shuffling together material for new versions of the controlling virus" and "It [the virus] rips away the cell's protective layers and burrows into the heart of the host". Complicated ideas need clear, precise language if they are to be understood, not fuzzy statements like these.

After this bad start the book gets better. It tells the story of interferon's discovery and development — with many quotations from workers in the field — which were in my case recorded by a pair of reporters well before the book was written and which I never saw until they appeared in print. There is no way of knowing how much the quotes reflect the speakers' present views. Which brings me to my final point — why publish in late 1982 a book which appeared in the USA the previous year — a book which is now seriously dated? Not only in the science — there have been big changes in the past year or so — but in public attitudes. The interferon hysteria has died down, and the clinical testing of interferon against viruses and cancer is proceeding but needs several more years of work. The last thing we need now is a revival of the hysteria of 1980, and for this reason I do not welcome the publication of this book in this country.

D. C. Burke

D. C. Burke is professor of biological sciences at the University of Warwick.

Appeal of ecology

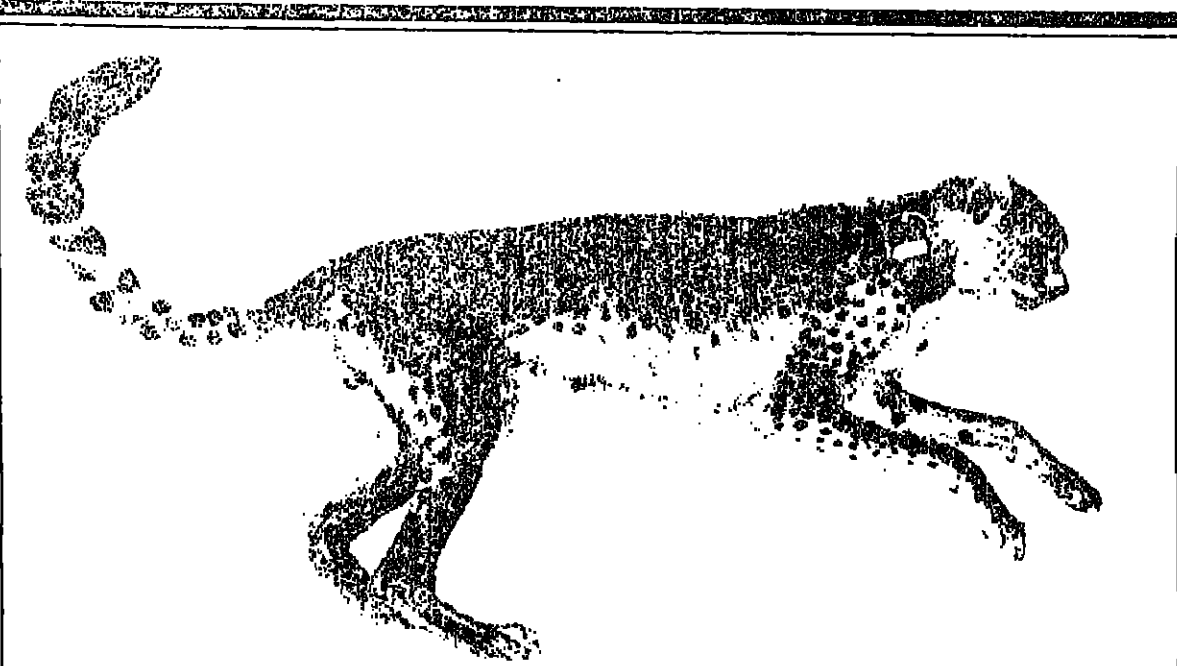
Animal Population Dynamics by R. Moss, A. Watson and J. Olsson Chapman & Hall, £2.75 ISBN 0 412 22240 X Modelling by John N. R. Jeffers Chapman & Hall, £2.75 ISBN 0 412 24360 1 Mammal Ecology by M. J. Delany Blackie, £17.50 and £8.25 ISBN 0 216 91310 1 and 91309 8

The rapidly developing study of ecology has spawned a fair number of holly books, often beyond the pocket of the ordinary student. Chapman and Hall's series, *Outline Studies in Ecology*, offers a number of small books at a very modest price, each aimed at a restricted topic of fundamental importance which is likely to be a component of a student's training in ecology. Recent additions to this series are *Animal Population Dynamics* and *Modelling*.

Animal Population Dynamics covers counting methods, numerical analysis of population change, the natural limitation of animal numbers, and some models of population regulation. There is also some discussion of management of populations of pests and animals that provide food for humans. It is difficult to understand why three authors are necessary for such a small book (some 20,000 words), at such a low level. The book is not well written, and lacks coherence.

Some terms are introduced, but not used. For example, "we have referred to birth rate, or 'natality', as a cause of population increase". As I was unable to find the term natality used again, I cannot think why it was introduced. Some concepts are introduced, but poorly explained. For example, in discussing the population as a unit, the authors introduce E. O. Wilson's structured deme model. I myself contrasted (see Alan Grahn's paper in *Nature*, 384, 494, 1980), but do not explain why group selection models might be unsatisfactory, or how this issue is related to theories of population regulation.

Indeed, the authors show a marked reluctance to address any of the important intellectual issues. They mention that certain topics are controversial without really explaining why. On the important topic of social organization and population density they express the pious hope that "a synthesis will emerge and



Drawing of a cheetah, by Pisanello, in the Louvre, Paris. Taken from *Drawing in Early Renaissance Italy* by Francis Ames-Lewis, now published in paperback by Yale University Press at £6.95.

potemities seem to be due to partial understanding". There then follows a passage that encapsulates an impression of this book: "Such a synthesis will come sooner if we learn to distinguish between phenomena and scholarship. A careful appraisal of the available facts, rather than what eminent workers have written about these facts, will lead to better understanding of what determines animal numbers."

I am sometimes approached by students with requests to show them how to make a model of their painstakingly collected data. Often it is necessary to carry out a lengthy interrogation to discover why they want a model, what they hope to discover, and so on. No longer need I face these preliminaries with dismay, since I can now ask them to read John Jeffers' excellent little book on the whys and wherefores of modelling in general, with examples drawn from ecology. He does not instruct the reader how to set up a model, but rather sets out the reasons why one might wish to start modelling, how one might start, and where one might start.

About a third of the book is taken up with a survey of seven different families of mathematical model and the types of problem to which they are suited. The references to the literature on these various aspects of modelling will be very useful to the beginner. There is also a very helpful appendix which consists of a checklist of questions reproduced from a pamphlet in the Institute of Terrestrial Ecology statistical checklist series. I recommend this book to anyone thinking of taking up modelling.

An altogether more substantial book is Professor Delany's *Mammal Ecology*. This covers geographical distribution, reproduction, life history, social organization, population, ecological niche, and energetics of mammals. The final chapter provides good brief accounts of some applied problems, including game cropping, and the conservation and management of whales, elephants, and others. The ecology of foxes, feral cats and rodents in relation to disease is also treated.

This is not a book for the absolute beginner. Written at a level that assumes that technical terms will be understood by the reader, the book provides a representative selection of topics from the main areas of ecological study. It also provides accounts of the well established ecological concepts and illustrates these with examples and studies of a wide range of species and of habitats. In these respects the book is suitable for students of ecology and for those working in related disciplines who want an introduction to mammalian ecology.

In some respects, however, this is not the ideal text for students. It is a little dull, partly due to the style of writing, and partly to a lack of interesting material. It does not tackle theoretical issues, or matters of current controversy, or perhaps, though unsuitable for a student text, also, it does not mention the exciting new methods being used in ecological studies, such as radiotelemetry and the Global Environmental

Monitoring System, which uses orbiting satellites. Although it provides an excellent survey of the consolidated achievements of the past, the book does not encourage the student to look to the future with much enthusiasm. This is a pity, because ecology is a subject which is capable of generating considerable enthusiasm in the young. Whether on the technical, intellectual, or ideological level, the opportunity should be taken to foster the appeal of ecology.

David McFarland

David McFarland is reader in animal behaviour at the University of Oxford.

Enzyme functions

Fundamentals of Enzymology by Nicholas C. Price and Lewis Stevens Oxford University Press, £25.00 and £12.50 ISBN 0 19 857 175 5 and 176 3

To achieve the aim of relating the properties of and studies on enzymes to their function in the cell is one measure of success; to provide a clear, concise and yet comprehensive survey, without oversimplification, for undergraduates is quite another matter. In this introduction to the field of enzymology, the authors have succeeded admirably on both counts.

The book is extremely well produced, with clear layout and diagrams. It provides a broad account of each area of enzymology, including historical aspects and a review of current knowledge, adequate refer-

ences to more detailed or advanced topics being given at the end of each section.

The theme of the book — an explanation of the need to study enzymes *in vitro* to understand how they work *in vivo* — is developed in an introductory chapter. Enzyme purification is then discussed in terms of strategy and principles with seven examples which clearly demonstrate the experimental approach necessary in different cases. It was pleasing to note the emphasis placed on protection against proteolysis, a problem little mentioned but which is becoming more frequent in enzyme studies.

A comprehensive chapter on enzyme structure includes accounts of molecular weight determination, amino-acid analysis, amino-acid sequencing and protein structure, with emphasis again being placed on experimental strategy. Enzyme kinetics and mechanism are well covered in separate chapters which, though not extensive, are written with due consideration to those students who may be discouraged by algebra and "curly arrows". Three chapters are then given over to the control of enzyme activity *in vitro* and *in vivo*, with much emphasis being placed on the properties of multi-enzyme systems and pathways in cells.

Many aspects of *in vivo* enzymology are also covered, including intracellular metabolite and enzyme concentrations, compartmentation, membrane-bound enzymes, and enzyme turnover, the many examples serving to explain clearly how enzymes might function inside cells and tissues. The book ends with chapters on clinical enzymology and enzyme technology.

I have no hesitation in recommending the book to undergraduates. I hope they will enjoy reading it as much as I did.

Clive Williams

Clive Williams is lecturer in biochemistry at Trinity College, Dublin.

Introduction to plant virology

L. Bos Plant viruses are recognised as major constraints to crop improvement. They disrupt the wellbeing of host plants, are extremely contagious and, unchecked, can have devastating effects on crops. This book provides undergraduates of plant pathology or microbiology with the first up-to-date introductory textbook available on the subject. It will also interest teachers and research workers in plant biology and agriculture. 132 pages Paper 0 582 44680 5 £6.95 net Publication: March 1983

Forthcoming publications in the Biological Sciences: Principles of plant biology for the tropics A R Lovell

The first major textbook to present a comprehensive coverage of plant biology with examples drawn almost exclusively from the tropics. 244 pages Paper 0 582 44757 7 £9.95 net Publication: April 1983

Nitrogen metabolism in plants

C. H. Brown An interesting new text which provides a comprehensive introduction to the subject for students of biochemistry, plant biology and agriculture. 182 pages Paper 0 582 44640 6 £6.95 net Publication: June 1983

Stomata

G. W. Wilmor Di Wilmor provides a complete coverage of the biology of stomata — their structure, physiology, control and possible disruption by pathogens and pollutants. 160 pages Paper 0 582 44632 5 £6.95 net Publication: July 1983

For further information on these titles and other biological science books published by Longman please write to: Rubecca Barnett, Longman Group Ltd, Longman House, Burnt Mill, Harlow, Essex CM20 2JE

Longman

Moss Flora of the Maritime Provinces

ROBERT R. IRELAND This identification manual covers the 380 species of mosses found in New Brunswick, Nova Scotia, and Prince Edward Island. It contains introductory sections on the structure and life cycle of a moss, methods of identification and study, collecting and herbarium techniques, etc. There is discussion of nomenclature and classification. Keys are provided for all genera and species, with information on habitat, distribution, range of chromosome number. Over 5,600 illustrations. Distributed for the National Museum of Canada. February 1983, £20.00.

The Phenomenon of Life

Toward a Philosophical Biology HANS JONAS This account of aliveness bridges the gap between a biology unaware of mind and a psychology of consciousness un mindful of corporeality. Jonas considers such vital phenomena as metabolism, emotion, sense perception, goal-directed behaviour, image-making and thought. First published 1966. £7.30 paperback.

Form and Function

A Contribution to the History of Animal Morphology E. S. RUSSELL In 1916 E. S. Russell published this lucid history of functional morphology from Aristotle until the end of the 19th century. A special introduction by George V. Lauder reviews research since Russell's time and relates Russell's themes to current lines of investigation. £8.80 paperback.

Attending Marvels

A Patagonian Journal GEORGE GAYLORD SIMPSON Simpson began his career in the 1930s with this book, a lively account of his first fossil-hunting expedition into Patagonia. £7.60 paperback.

CHICAGO

The University of Chicago Press, 126 Buckingham Palace Road, London SW1W 9SD.

BOOKS

BIOLOGICAL SCIENCES

Playing the game

Evolution and the Theory of Games
by John Maynard Smith
Cambridge University Press,
£18.00 and £6.50
ISBN 0 521 24673 3 and 28884 3

The theory of games was formulated mathematically by von Neumann and Morgenstern in 1952 to represent the competitive behaviour of human beings each pursuing their own selfish motives with complete rationality. Unfortunately (for the theory) human beings are frequently unselfish and irrational. John Maynard Smith begins his book by pointing out that with suitable interpretations of "selfish motives" and "rationality", the behaviour of animals in their natural environments will follow the strategic recommendations of the theory of games.

Natural selection ensures that animals are good at producing children, because children are like their parents. Not (necessarily) because they are literally trying to have as many children as possible, nor (necessarily) because they are calculating the effects of their actions; but because they are doing the same as their parents and grandparents and great-grandparents; and the ancestors of today's population are the successful individuals from the population of a thousand years ago. Success means "having many children".

We replace selfish motives with maximizing number of children as the object of the game, and we replace conscious calculation with the unconscious power of natural selection. We can now model the behaviour of animals as if they were the rational and selfish creatures the theory of games requires.

The feature of animal behaviour that invites the game theory approach is that in many social encounters the best thing for one animal to do depends on what the other does. If we are fighting over food, and I know that you will run away if I so much as scowl at you, then I shall scowl. If I know that you will try to tear me limb from limb unless I retreat immediately, then I must weigh the costs of fighting (wasting time, chance of injury) against the likelihood of winning (are you bigger than me?) and the benefits of winning (is food so scarce that this place is very valuable?). I also know that you are faced with exactly the same kind of decision. Resolving these different considerations into a decision is the subject of game theory: should I retreat? should I scowl? but retreat if challenged? should I immediately launch an all out attack on my opponent?

The defining feature of an "evolutionarily stable strategy" (ESS) is that if I know everyone else is going to follow it, then I should follow it too. An ESS is a strategy that is the best reply to itself. The logic is simple enough: once all the animals in a population are playing an ESS, natural selection cannot favour any other strategy. It is therefore "evolutionarily stable".

The idea behind the ESS is quite old: in biology it was used in 1930 by R. A. Fisher in relation to sex ratios, before game theory was invented. The Hamilton study of sex ratios in social populations was specifically inspired by ESS. The original idea for

the 1973 paper that launched the acronym ESS and the particular formulation that undergraduate biologists learn today was G. R. Price's. Price's collaborator was John Maynard Smith, who has presided over the subsequent development of ESS theory.

There is now a large body of ESS theory dealing with sex ratios, aggression, sexual selection, anisogamy and more. The way of thinking encouraged by ESS theories is as important as the formalism itself. After a decade, the use of ESSs is widespread as is the understanding they provide.

Maynard Smith can explain difficult ideas in an entertaining and effective way, by the spoken and written word. He is also the clearing-house for applications of game theory to biology, as a consulting referee for journals and the obvious referee for related papers. His opinions on models are always sound. Should one believe Blobs' result? Does it depend crucially on some parameter? Has Blobs generalized his result to include the case $x=5$? Should we really expect to see animals behaving as Blobs suggests? Has anyone done this? Maynard Smith will know. He is nearly always right, and always sensible.

His book is extremely sensible. It is an end of decade report, and contains the author's sound opinion on the whole range of ESS modelling and applications. It will be an indispensable handbook for field-workers and theoreticians. I doubt, however, the publisher's claim that "the main text may be easily followed by biologists". I confess I found it hard going, despite being familiar with most of the material and despite being enthusiastic about equations (which the publishers claim rather misleadingly have been banished to appendices). I close by advising any readers who are evolutionary biologists that, although they may not be able to follow the book easily, they should follow it nevertheless.

Alan Grafen
Alan Grafen is a member of the Animal Behaviour Research Group and a research lecturer at Christ Church, University of Oxford.

Ammonia factories

The Fundamentals of Nitrogen Fixation
by John R. Postgate
Cambridge University Press,
£20.00 and £7.95
ISBN 0 521 24169 3 and 28494 5

All life on Earth requires nitrogen to make (among other things) body protein. Virtually all living organisms have to obtain their nitrogen in the combined form before they can use it. That is, as ammonia or nitrate from the soil, or as plant and animal food. Professor Postgate's well written book is about those organisms which can utilize nitrogen sources: the vast reservoir of nitrogen gas present in the air. It is only these organisms which can convert nitrogen into ammonia, using an enzyme called nitrogenase, and thus tap up the pool of combined nitrogen required by other living organisms.

Nitrogen-fixing organisms are currently of interest because they can produce ammonia, from nitrogen at normal temperatures, something the chemical industry cannot readily do. In the Haber-Bosch process, used by the chemical industry, high tempera-



Newly-hatched shelducklings, photographed by Maggie Makepeace.

tures and high pressures, both of which are provided by the combustion of fossil fuels, are required; natural gas also supplies the hydrogen which is combined with nitrogen to make ammonia. If the chemical industry could make ammonia at room temperature, or if plants such as cereals could be induced with their own nitrogen-fixing machinery, this would bring about considerable savings in energy at present, the manufacture and distribution of chemical nitrogen fertilizer utilizes about four per cent of the total UK energy budget. That is why there is so much interest in the microbiological process and why, by unravelling the fundamentals of the process today, we may be able to use this knowledge to commercial advantage tomorrow.

Professor Postgate, who is Director of the ARC Unit of Nitrogen Fixation at the University of Sussex, has provided one of the best introductions available on this topic. The approach is that of a microbiologist interested in the functioning of microorganisms at the physiological, enzymological and genetic levels.

A short introductory chapter on the nitrogen cycle sets the scene. Chapter two deals with the major groups of nitrogen-fixing prokaryotes. Chapter three provides an up-to-date account of enzymology including the historical perspective. Chapter four on physiology is vintage John Postgate.

Chapter five, on genetics, is particularly good and draws largely on work from the author's own laboratory. A chapter on ecology then provides a survey of the various associations involving nitrogen-fixing prokaryotes. Finally, there is a chapter on origin and evolution, which is necessarily speculative.

The book is well produced, up-to-date, and full of pertinent information. The reference list is refreshingly useful.

W. D. P. Stewart
W. D. P. Stewart is professor of biology at the University of Dundee.

Levels of immunity

Introduction to Molecular Immunology
by Alfred Neisoff
Blackwell Scientific, £8.50
ISBN 0 87893 594 0

According to the preface, this book is intended to be used for introductory courses in molecular and general immunology. The subject is, for the most part, discussed in considerable detail without sacrificing clarity and with plenty of informative diagrams. The breadth of coverage of many of the topics is, however, well beyond that required for an introductory course, and it is better suited to an advanced course for students specializing in immunology, or for research workers who wish to broaden their knowledge of molecular immunology. Even at this level the detail is sometimes excessive, for example, it is difficult to justify

the large number of amino acid sequences included, and there is some unnecessary repetition. There are also several errors for the reader to beware of—for example, the amino acid side chain shown in figure 1 of chapter three does not, so far as I am aware, exist in nature and it is unfortunate that the model of IgM chosen to illustrate the model of cover, and also shown in the text, does not conform with current views on the arrangement of disulphide bridges in this molecule and is even contradicted by an incorrect statement about the mode of attachment of the polypeptide J chain. The description of the plaque-forming cell assay in chapter nine, arguably the technique that has contributed more to our understanding of immunology than any other, is also incorrect.

In mitigation of these criticisms, the discussions of the molecular nature of allotypes and idiotypes are excellent as would be expected from an author with such a high reputation in this field. The chapters on immunological techniques and monoclonal antibodies are also valuable additions, although in a book of this size it is not possible to describe more than a small proportion of the enormous number of immunological assays available. The applications of monoclonal antibodies are, however, relevant to modern immunology but also, as the author points out, to a wide variety of other areas of biological research and clinical diagnosis. There are also excellent descriptions of the complement system, the organization of immunoglobulin genes and RNA processing. The latter two subjects are advancing so rapidly that any review is inevitably out of date by the time it is published; but the chapter in this book provides excellent coverage of the subject. It is a pity, therefore, that this is spoiled by the complete omission of any discussion of immunoglobulin biosynthesis. A brief discussion of the clonal selection theory of antibody formation would also be valuable to enable the reader to understand how antibodies are produced with specificity for the enormous variety of antigens to which an animal can respond.

The inclusion of the one-letter code for amino acids is useful, indeed essential, considering the large number of sequences in the book, but the relegation of the major histocompatibility antigens to an appendix, without any mention of their importance in transplantation, cell cooperation and the killing of virus-infected cells is inexcusable. The bibliography at the end of each chapter will be useful for students wishing to extend their reading but the index is inadequate and a glossary of immunological terms ought to be included if the book is truly intended to be introductory, as the author claims.

Despite a number of faults and omissions, this book provides an excellent description of some of the major aspects of molecular immunology and will be a valuable addition to the reading list of any student specializing in immunology, but is not recommended for introductory courses in which the student has no prior knowledge of the subject.

D. I. Stoff
D. I. Stoff is a lecturer in the department of bacteriology and immunology at the University of Glasgow.

D. M. Bryant
D. M. Bryant is senior lecturer in biological sciences at the University of Shilling.

Shelduck observed

The Shelduck: a study in behavioural ecology
by I. J. Patterson
Cambridge University Press, £27.50
ISBN 0 521 24646 6

The long-term study of bird populations is a well established feature of ornithological research in Britain. This is shared with some other European nations but is in sharp contrast with North American practice, where short projects are the norm. Hence of the fourteen studies of more than four years duration, described in detail by Lack (1966) in his review *Population Studies of Birds*, nine were concerned with studies in Britain. Some of these are now complete and yet several others have been going since that time. Among these is a study of Shelduck on the Ythan Estuary, in north-east Scotland, now described by Ian Patterson.

Perhaps inevitably, no bird population has yet proved ideal for detailed study, some disadvantage is invariably offsetting the particular advantages any one species offers. A frequent difficulty is distinguishing between death (= breeding failure) and dispersal (= breeding success) among fledglings which simply disappear. The Shelduck, however, clearly has many helpful attributes, not least its conspicuousness in the field, itself a product of its large size, open habitat and pied plumage. The Shelduck's disadvantage for the researcher is a tendency for broods from different pairs to mix and form "creches" soon after hatching, largely preventing any assessment of the breeding success of individuals. As field ecologists have few alternative ways of measuring Darwinian "fitness", this can be a considerable constraint.

One merit of Patterson's book is that it explicitly recognizes difficulties of this type and gives us a well balanced discussion of possible interpretations while at the same time making full use of the many productive aspects of the study. Interestingly, the study began at a time when the main research thrust among field ornithologists was towards an understanding of population regulation. This approach has survived into an era where detailed study of constant population processes, under the general umbrella of "behavioural ecology", has tended to overshadow progress on the larger theme. As a result we are treated to an evolving and thoroughly up-to-date interpretation of both the early population data and more recent results.

The book begins with a summary of Shelduck biology, before launching into eight chapters mainly concerned with the Ythan population. These chapters are arranged in the sequence of the Shelduck's annual cycle, covering the winter flock, territories, nest-prospecting, laying and incubation, care of young, duckling survival, and recruitment. Each chapter begins with a succinct summary of its content and is written clearly but with few concessions to the lay reader. Conflicting interpretations of data for the Ythan are given full and stimulating treatment. Sadly, detailed comparisons with other studies in Britain are rather brief and yet this is one of very few species which has been the subject of intense study at more than one site (notably in Kent and on the Firth of Forth). The book concludes with a chapter on "The limitation of Shelduck populations", in which the consequences of territoriality and other population factors for population size and its limitation are discussed.

In terms of style and level, this excellently produced volume has many similarities with Princeton's *Monographs in Population Biology*. They are written to appeal across the boundaries of conventional disciplines to those interested in or engaged in research. Accordingly, *The Shelduck* is a rewarding text for evolutionary and behavioural ecologists whatever their preferred organism.

D. M. Bryant
D. M. Bryant is senior lecturer in biological sciences at the University of Shilling.

THE TIMES HIGHER EDUCATION SUPPLEMENT 16.2.83

Honorary degrees

Durham

DCL: Mrs Frances Clare Spurgin, OBE, JP, founder member of the executive committee of the Commonwealth Magistrates' Association. DBS: Professor Arthur H. Rosenfield, particle physicist, professor of physics at the University of California at Berkeley. Professor Sir Frederick (Henry) Stewart, KT, FRSE, FRGS, regius professor of geology at the University of Edinburgh and former senior lecturer in geology at Durham. DLit: Mr Albert Houbert, CBE, emeritus fellow of St Anthony's College, Oxford where he was formerly reader in the modern history of the Middle East. Dr John Howell, Linton Myers, CBE, classical historian and archaeologist. Bodley's librarian at the University of Oxford until 1965; Mme Esmae de la Roche-Guimard, poet and author; Dr John William Shiley, holder of the H. Fletcher Brown chair in the history of science at the University of Delaware.

Leicester

LtD: Mr K. W. Bowder, OBE, solicitor and chairman of the University Council. Dame Cicely Saunders, DBE, founder of St Christopher's Hospice. DLit: Professor Sheppard Frere, CBE, FBA, professor of archaeology of the Roman Empire at Oxford University. Sir Lawrence Gowing, LtD: Professor of Fine Art at University College, London; Miss Maggie Smith, CBE, actress. Mrs Mrs Ian Inlay, organist and choirmaster at St Michael's Church. DBS: Dr Sidney Brenner, FRS, director of the laboratory of molecular biology, Cambridge, which starts at 7.00pm., will include a talk by R. G. Harrison, Lecturer in English at Royal Holloway College, on "Conrad, Wells and the Arabian Nights".

Forthcoming Events

On February 23, Professor William Keats, FRS, will deliver the seventh John Keats Memorial Lecture on "The Keatsian Paradox: The Poet and the Poet's World" at the Royal College of Surgeons, Lincoln's Inn Fields, London WC2.

The annual conference of the British Sociological Association will be held at University College, Cardiff from April 5 to 8. This year's theme will be "Beyond the Fringe: The Periphery of Industrial Society". Inquiries and applications should be made to the British Sociological Association, 10 Portugal Street, London WC2A 2HU.

The LSE Sunbury-Toyota Lecture will be delivered on Tuesday February 22 in the board room of the London School of Economics, Houghton Street, London WC2. The speaker will be Professor Donald Coleman, fellow of Pembroke College, Cambridge, on "The Rise and Decline of Economic History".

The Stevenson Memorial Lecture, organized by the London School of Economics in conjunction with the Royal Institute of International Affairs, is to be delivered on Thursday February 24 at 5.00pm, in the Old Theatre. This year's speaker is Sir Anthony Parsons, former British Permanent Representative to the United Nations, on the subject of "The UN and International Security in the 1980s".

The sixth annual Woodfield Lecture on the theme of children's literature will take place at the Marlin Hall Theatre of Loughborough University on Wednesday, May 4 at 7.00pm. The speaker this year is Shirley Hughes, author and illustrator on the subject "Words and Images". This public lecture is organized by the Department of Library and Information Studies.

There will be a joint meeting of the Joseph Conrad Society and the H. G. Wells Society on February 25 in the library at Conway Hall, Red Lion Square, London WC1. The meeting

Appointments

Universities

University College, Cardiff (Coleg Y Brifysgol Caerdydd): Lectureship: Dr H. P. Evans (mechanical engineering and energy studies); Dr P. Hollis (chemistry); Mr A. G. Johnston (mineral exploration); Mrs E. Lewis (home economics).

City: Professor Costas Grammenos, one of the world's leading experts in shipping finances, has been appointed to the City University business school to establish Europe's first degree courses in the industry. The school will also establish an International Centre for Shipping and Shipping Finance which will be active in research and teaching and will provide advisory services to Government and financial agencies.

Wales National School of Medicine (Ysgol Feddygol Cymru): Dr Mark Woodward, senior lecturer in the department of haematology has been promoted to a readership.

Edinburgh: Dr Jenny Proffitt has been appointed director of the nursing research unit in the University of Edinburgh's department of nursing studies, in succession to Dr Libeth Hockley, who is retiring. Recently, Dr Proffitt has been visiting professor at the Catholic University of Louvain. Her publications include studies of adolescent suicide to the concepts of research-mindedness, clinical tranquility and caring.

Glasgow College of Technology: Dr David Hatcher, at present director of accounts and auditing research at the Institute of Chartered Accountants of Scotland, has been appointed head of the department of finance and accounting at Glasgow College of Technology. Mr Hatcher is the author of *Audit Evidence Process*, which was published in 1980.

Marcel Duchamp's "Boite-en-Valise" - "The Travelling Box" - is a kind of carefully fitted suitcase containing over 70 reproductions of miniature replicas of his work. Duchamp began the project in the 1930s under the shadow of Fascism and completed the edition of 300 by his death in 1968.

Duchamp thought of the box as a portable museum and it stands as an effective parody (via the link with the travelling salesman's compartment case) of the commercialization of art. The "Box" is now on show at Goldsmiths' College, London, where it was the subject of a seminar led by Dawn Ades of Essex University.

Lady Methven and Mr Nicholas Stacey, chairman of Chesham Amalgamations and Investments, have accepted invitations from the Secretary of State for Education and Science to serve as members of the United States - United Kingdom Educational Council to replace Professor Malcolm Bradbury of the University of East Anglia and Professor Susan Haack of the University of Warwick, whose terms of membership have expired.

A new bibliography of the history of Staffordshire is to be compiled by the Centre for Local and Community History at the University of Keele. With the aid of a £20,000 grant from the Jack Leighton Charitable Trust, the new work, under the direction of Dr Robin Field, senior lecturer in history at the university, will supersede the last historical bibliographical work on Staffordshire, *Staffordshire Bibliography*, published by Rupert Sims in 1964.

The Manpower Services Commission has appointed Mr Ron Stephenson as chief executive of the new Skills Centre Training Agency. Mr Stephenson is at present director of field operations of the MSC's Training Services.

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Open University programmes February 19 to February 25

Saturday February 19

8.00 Evolution: Species and Evolution (S364); prog 6.80
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Accommodation

Universities

University of Nottingham

SHELL CENTRE FOR MATHEMATICAL EDUCATION

The Shell Centre is an extra-faculty research unit of the University, with a substantial number of integrated curriculum development and research projects aimed at improving the teaching and learning of mathematics.

LECTURER IN MATHEMATICAL EDUCATION

The University seeks a person of high ability to join the permanent staff who lead these projects. A sensitivity to teaching and a research approach are essential - experience in teaching, teacher training, mathematics, and research in the human sciences will be an advantage. The Centre has close links with the Department of Mathematics and with the School of Education, to which it is contributing programmes of research. Salary in the range £23,375 - £25,500. Ref. No. 853.

RESEARCH FELLOWS

There are vacancies for two Research Fellows to work in the following fields:

- The Centre is studying the development of examinations to help promote the use of higher level skills, such as those involved in problem solving and the use of mathematics. The Fellow will work on this Teaching Strategy Skills project, which involves close collaboration with a large Examination Board, in designing modules containing examination tasks, associated teaching material and teacher support material using an approach based on an integration of research in mathematics teaching and research experience in the human sciences will be an advantage. The Fellowship which can begin as soon as is convenient will be for two years with a possibility of an extension. Salary according to age and experience. Ref. No. 854.
- This post is for the Diagnostic Teaching Research Project, which is investigating teaching methods for key topics of the secondary curriculum based on research into pupils' misconceptions, and developing appropriate teaching materials. Experience in mathematics teaching, a sensitivity to pupils' approaches and a research orientation are essential. The Fellowship is for two years from summer 1985. Salary according to age and experience. Ref. No. 855.

Further particulars and application forms for the three above appointments, returnable not later than 31st March 1985, should be obtained from the Staff Appointments Officer, University of Nottingham, University Park, Nottingham, NG7 2RD.

University of Nottingham

Department of Engineering and Technology
Faculty of Engineering and Technology
School of Mechanical Engineering

ROBOTICS RESEARCH ULTRA-SONIC SENSORS

The University is conducting research in the field of Robotics and Ultra-sonic Sensors. The research is being carried out in the School of Mechanical Engineering. The research is being carried out in the School of Mechanical Engineering. The research is being carried out in the School of Mechanical Engineering.

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University of Cambridge

Department of Engineering and Technology
Faculty of Engineering and Technology
School of Mechanical Engineering

TEACHING APPOINTMENT IN CLASSICS

The University is seeking a person of high ability to join the permanent staff who lead these projects. A sensitivity to teaching and a research approach are essential - experience in teaching, teacher training, mathematics, and research in the human sciences will be an advantage. The Centre has close links with the Department of Mathematics and with the School of Education, to which it is contributing programmes of research. Salary in the range £23,375 - £25,500. Ref. No. 853.

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MURDOCH UNIVERSITY Perth, Western Australia

Applications are invited from suitably qualified persons for the following positions which are to be taken up on 1 July 1983 or as soon as possible thereafter.

SCHOOL OF HUMAN COMMUNICATION TENURABLE LECTURESHIP IN COMPARATIVE LITERATURE

(Ref. ENO338)
Applications are invited from candidates with teaching and research interests in areas covered by the Comparative Literature Programme. The programme has a strong basis in literary theory and is committed to a comparative and interdisciplinary approach to the study of literature. It includes courses in various aspects of literary theory (structuralism, semiotics, phenomenology, psychoanalysis, mysticism, religion and literature, etc), in literature and social context, and in the three major genres: narrative, drama and poetry. Applicants may have expertise in any aspects of comparative literature and literary theory, but a strong interest in teaching and research should be evident. Publications, teaching experience at University level and fluency in at least one other major language besides English.

SCHOOL OF MATHEMATICS AND PHYSICAL SCIENCES TENURABLE LECTURESHIP IN MATHEMATICS

(Ref. ENO125)
The School offers a complete programme of studies in mathematics. The course is broadly based, with components of statistics and computing, and leads to postgraduate degrees. In addition, opportunities exist for postgraduate studies in mathematics and physics. Research interests include various branches of functional analysis, statistics and modern applied mathematics. As well as having qualifications and research interests in some branch of mathematics or mathematical statistics, applicants should have a demonstrated interest in teaching at University level. Preference may be given to applicants with qualifications in statistics and experience in computing.

General Salary Range: £22,430 to £29,467 per annum. There are attractive opportunities for career progression, superannuation, long service leave, outside studies programme, payment of fares to Perth for appointees and dependent family, removal and settling-in allowances and house purchase scheme. Procedures for applications: There is no prescribed form, but TWO COMPLETE SETS of detailed applications quoting the appropriate reference number, including full personal particulars, details of tertiary qualifications, career history and description of post-graduate field, area of special competence and interest, research completed or currently being undertaken, membership of professional institutions or societies and positions of responsibility in these; list of relevant material published by the applicant, when available to take up appointment if offered; and the names and addresses of three professional referees should reach the Personnel Officer, Murdoch University, Western Australia 6150, by 18 March 1983. Applicants resident in the United Kingdom, Europe or Africa, at the time of application should also forward ONE further copy to the Association of Commonwealth Universities (App), 36 Gordon Square, London WC1H 0PF.

University of Oxford PROFESSORSHIP OF PHARMACOLOGY

The University is seeking a person of high ability to join the permanent staff who lead these projects. A sensitivity to teaching and a research approach are essential - experience in teaching, teacher training, mathematics, and research in the human sciences will be an advantage. The Centre has close links with the Department of Mathematics and with the School of Education, to which it is contributing programmes of research. Salary in the range £23,375 - £25,500. Ref. No. 853.

THE UNIVERSITY OF SHEFFIELD WOLFSON INSTITUTE OF BIOTECHNOLOGY

Two LECTURESHIPS IN BIOTECHNOLOGY
Applications are invited for the above posts following the award of a UGC fund in support of biotechnology. The posts will be made in the areas of applied microbiology and enzymology. The posts will be made in the areas of applied microbiology and enzymology. The posts will be made in the areas of applied microbiology and enzymology.

1. Lectureship in Applied Microbial Physiology
Applicants for this post should have a background and interest in applied microbiology and experience in the running of biotechnology in a continuous or semi-continuous basis. Experience with yeasts would be a distinct advantage. The Institute of Biotechnology has close links with the Department of Microbiology. The two departments are anxious to foster the development of a joint teaching and research programme. The successful candidate would be expected to take a major initiative. Applicants should possess a first degree in Microbiology, Molecular Biology or an allied subject and have several years post-graduate experience. The appointee will be expected to continue to teach at the post-graduate level as well as undertake research. Initial salary in the range £23,375 to £25,500 per year (points 1-11) on the scale for Non-Clinical Lecturers, rising to £25,500 per year. Expected age of candidate up to about 34 years but older candidates are considered for appointment.

2. Lectureship in Eukaryotic Molecular Genetics
Applicants for this post should have a background and interest in molecular genetics, preferably at the eukaryotic level. Particular experience in cloning DNA technology would be an advantage as would some knowledge of plant genetics and particularly of the model system of maize. The successful candidate would be expected to take a major initiative. Applicants should possess a first degree in Genetics, or an allied subject and have several years post-graduate experience. The appointee will be expected to continue to teach at the post-graduate level as well as undertake research. Initial salary in the range £23,375 to £25,500 per year (points 1-11) on the scale for Non-Clinical Lecturers, rising to £25,500 per year. Expected age of candidate up to about 34 years but older candidates are considered for appointment.

Particulars from the Registrar and Secretary (Staffing), The University of Sheffield, 100 TTN to whom applications (4 copies) including the name of three referees, should be sent by 11th March 1983. Details may also be obtained from the Institute of Biotechnology, Professor M. W. Fowler, (Tel. 0743-76555, Ext. 4246). Quota ref. R75231.

THE UNIVERSITY OF LANCASTER Lectureship in Theatre Studies

Applications are invited for the post of Lecturer in Theatre Studies, from 1st October 1983. The successful candidate will be required to contribute to a variety of work in the Department of Theatre Studies, including teaching and research. The successful candidate will be required to contribute to a variety of work in the Department of Theatre Studies, including teaching and research. The successful candidate will be required to contribute to a variety of work in the Department of Theatre Studies, including teaching and research.

University of East Anglia LECTURESHIP IN MECHANICAL ENGINEERING

Applications are invited for the post of Lecturer in Mechanical Engineering, from 1st October 1983. The successful candidate will be required to contribute to a variety of work in the Department of Mechanical Engineering, including teaching and research. The successful candidate will be required to contribute to a variety of work in the Department of Mechanical Engineering, including teaching and research. The successful candidate will be required to contribute to a variety of work in the Department of Mechanical Engineering, including teaching and research.

University of East Anglia LECTURESHIP IN MECHANICAL ENGINEERING

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Universities continued

University of London THE LONDON SCHOOL OF ECONOMICS

LECTURESHIP IN INTERNATIONAL HISTORY

Applications are invited for appointment from 1st October, 1983 to a lectureship in International History. The successful candidate will be expected to teach within a wide period of modern history. Preference will be given to a specialist in British Political History for the period 1810-1914. An ability to contribute to the teaching of general history, political and intellectual ideas in the same period will also be an advantage.

LECTURESHIP IN INTERNATIONAL RELATIONS

Applications are invited for appointment from 1st October, 1983 to a lectureship in International Relations.

LECTURESHIP IN LAW

Applications are invited for appointment from 1st October, 1983 to a lectureship in Law with special reference to International Law. Appointment in each case will be on the salary scale for lecturers of £26,375 to £25,500 a year, plus £1,158 a year London Allowance. In assessing the starting salary consideration will be given to qualifications, age and experience. Application forms and further particulars are available, on receipt of a stamped addressed envelope, from the Assistant Secretary (Academic), The London School of Economics, Houghton Street, London WC2A 2AE. Closing date for applications: 11th March 1983.

UNIVERSITY OF ST ANDREWS ASSOCIATE LIBRARIAN (Grade III)

The University invites applications from candidates with appropriate qualifications and experience for the vacant post of Associate Librarian (Reader Services) on Grade III of the National Salary Scales (£12,920-£16,180). The person appointed will be one of two Associates, each directly responsible to the Librarian for a major division of the library's work (there is no post of Deputy Librarian). Further information should be obtained from the Librarian, University Library, North Street, St Andrews, Fife KY16 9TR. The closing date for applications is 14 March 1983.

INTERNATIONAL UNIVERSITY - EUROPE

Sending additional Faculty/Staff for American degree programmes in Business Administration. Full-time or part-time appointments are invited.

LECTURER IN BUSINESS STUDIES

Teaching Financial Management/Accounting/Investments. Candidates should hold appropriate postgraduate qualification and/or equivalent professional qualifications.

ESOL TEACHERS

For part-time and full-time employment on our London Campus (Barnet). Part-time appointments begin April 1983. Full-time appointments begin September 1983. Candidates should have advanced degree training in teaching English as a second language and a minimum of three years of experience in teaching adults. Candidates should forward C.V. and application letter stating earliest availability date to the Academic Dean, International University - Europe, The Avenue, Barnet, Herts. WD22 2JN by 28th February, 1983. Dr. Gordon Bennett, Director U.-E.

University of Nottingham LECTURESHIP IN EDUCATION (MICRO-ELECTRONICS IN EDUCATION)

The University is seeking a person of high ability to join the permanent staff who lead these projects. A sensitivity to teaching and a research approach are essential - experience in teaching, teacher training, mathematics, and research in the human sciences will be an advantage. The Centre has close links with the Department of Mathematics and with the School of Education, to which it is contributing programmes of research. Salary in the range £23,375 - £25,500. Ref. No. 853.

University of East Anglia CHAIR IN COMPUTING STUDIES

Applications are invited for the post of Lecturer in Computing Studies, from 1st October 1983. The successful candidate will be required to contribute to a variety of work in the Department of Computing Studies, including teaching and research. The successful candidate will be required to contribute to a variety of work in the Department of Computing Studies, including teaching and research. The successful candidate will be required to contribute to a variety of work in the Department of Computing Studies, including teaching and research.

UNIVERSITY OF HONG KONG

Applications are invited for the following posts (closing dates in brackets):

LECTURER IN INORGANIC CHEMISTRY

(31 March 1983). Candidates in the field of coordination chemistry with special interest in synthesis as well as electrochemistry and/or photochemistry are preferred. Experience in undergraduate teaching and industrial applications of inorganic chemistry would be an advantage. The appointee will be expected to teach general inorganic chemistry and occasionally, if needed, in an area outside of inorganic chemistry.

LECTURERS IN PHYSIOLOGY (2 posts)

(15 May 1983). The appointees will be required to participate in the teaching of physiology to dental and medical students. Applicants with higher degrees in Physiology or medical degrees or dental degrees will be given preference. Applicants should have done research and teaching experience, and a special interest in one of the following areas: 1. Cardiovascular Physiology; 2. Gastrointestinal Physiology; 3. Neurophysiology.

Annual salaries (superannuable) are:
Lecturer (11 point scale): HK\$128,840-217,380
(£1 = HK\$16.01 approx.)

Starting salary will depend on qualifications and experience. At current rates, salaries tax will not exceed 15% of gross income. Housing benefits at a rental of 75% of salary, children's education allowances, leave and medical benefits are provided.

Further particulars and application forms may be obtained from the Association of Commonwealth Universities (App), 36 Gordon Square, London WC1H 0PF, or from the Appointments Unit, Secretary's Office, University of Hong Kong, Hong Kong.

Southampton THE UNIVERSITY Temporary Lecturer in Accounting

Applications are invited for the above post in the Department of Accounting and Management Sciences for one or two years commencing 1st August, 1983, or soon thereafter. The post is for a temporary lecturer in accounting theory or financial accounting would be particularly welcome. Salary in the range £23,375-£25,500 p.a. or exceptionally higher.

Applications (4 copies) with curriculum vitae and the names of three referees should be sent to Mr. D. A. Copland, University of Southampton, 809 0NH by the 28th March 1983. Further particulars may be obtained. Please quote Reference 166A.

Brunel University Department of Mechanical Engineering LECTURESHIP

Applications are invited for a Lectureship in the Department of Mechanical Engineering. The successful candidate will be required to contribute to a variety of work in the Department of Mechanical Engineering, including teaching and research. The successful candidate will be required to contribute to a variety of work in the Department of Mechanical Engineering, including teaching and research. The successful candidate will be required to contribute to a variety of work in the Department of Mechanical Engineering, including teaching and research.

Brunel University Department of Mechanical Engineering LECTURESHIP

Applications are invited for the post of Lecturer in Mechanical Engineering, from 1st October 1983. The successful candidate will be required to contribute to a variety of work in the Department of Mechanical Engineering, including teaching and research. The successful candidate will be required to contribute to a variety of work in the Department of Mechanical Engineering, including teaching and research. The successful candidate will be required to contribute to a variety of work in the Department of Mechanical Engineering, including teaching and research.

Brunel University Department of Mechanical Engineering LECTURESHIP

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Brunel University Department of Mechanical Engineering LECTURESHIP

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University of Oxford Hertford College APPLICANTS ARE INVITED FOR THE MARY STARUN SCHOLARSHIP

in Polish studies tenable for one or two years from 1 October 1983. The scholarship is intended to enable students to undertake research in Polish literature at undergraduate or postgraduate level. The salary on scale £1,688 x 12 increments to £3,750 per annum inclusive of London Allowance.

Further details may be obtained from the College Secretary, Hertford College, 100 St John's Lane, Oxford, OX1 2JF. The closing date for applications is 12 March 1983.

University of St Andrews Department of Moral Philosophy LECTURER

Applications are invited for the post of Lecturer in Moral Philosophy for five years from September 1983. Starting salary within range £23,375 to £25,500 per annum under USS.

Applications, with the names of three referees, should be sent to the Registrar, University of St Andrews, 100 St John's Lane, St Andrews, Fife KY16 9TR. The closing date for applications is 12 March 1983.

University of Cambridge ADMINISTRATIVE ASSISTANT

Applications are invited for the above vacant office in the Office of the General Secretary, Faculty of Education, to assist in the preparation of statistical (including computer) records.

Salary scale: £5,962-£11,105. Further particulars obtainable from the Faculty of Education, University of Cambridge, 477, The Old School, Cambridge CB2 3RQ. Applications should be sent to the Registrar, Faculty of Education, University of Cambridge, 477, The Old School, Cambridge CB2 3RQ. The closing date for applications is 12 March 1983.

University of Bristol ECONOMICS AND ECONOMETRICS

The University proposes to make two appointments to Chairs in the Department of Economics, one in Economics and one in Econometrics.

Suitably qualified candidates are invited to submit applications for the above posts. Further particulars of the posts and the application process may be obtained from the Registrar, University of Bristol, 8, Woodland Road, Bristol, BS8 1RJ.

UNIVERSITY OF BRISTOL ECONOMICS AND ECONOMETRICS

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Letters for publication should arrive by Tuesday morning. They should be as short as possible and written on one side of the paper. The editor reserves the right to cut or amend them if necessary.

Life in Japan